

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF FISH AND GAME

FISH BULLETIN 145

THE CALIFORNIA PARTYBOAT
FISHERY
1947-1967

BY
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Marine Resources Region



1969

ABSTRACT

At the beginning of the 20th century, marine partyboat fishing in California was a wealthy man's sport, but 30 years later, the nucleus of the present day fleet of about 400 partyboats was forming. The development of the fleet from 1936 to 1967 is traced in brief, including mention of the influence of governmental agencies on safety, food handling, communications, employment, records of catch, and taxes. A study of fleet activities for one year, 1963, is presented and reveals some economic facts of partyboat life.

During the 21 year period, 1947-1967, the statewide marine partyboat fleet reported a catch of over 71 million fish. Annual totals ranged from 2.0 to 5.4 million fish.

Salmon, striped bass, rockfish, and lingcod have been the primary species sought and taken from Oregon to Point Arguello, whereas off southern California the California barracuda, kelp and sand bass, California yellowtail, Pacific bonito, and California halibut were the most important species.

Of the 20 most important partyboat game fishes in the southern California fishery, all except one entered the commercial fishery.

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ACKNOWLEDGMENTS

A study of this scope can only result from the efforts of many people. Foremost among these were the partyboat skippers, landing operators, and deckhands who assembled the raw catch data into log form.

Jack W. Schott and John L. Baxter spent months reviewing catch logs for completeness and applicability. Jack Schott, in particular, devised many schemes to improve the quality of the data gathered.

Within the Department's Biostatistics Unit, many of the personnel performed the bookkeeping processes that go along with International Business Machines. Their work resulted in monthly and annual summations of catch which are the cornerstones of fisheries research. Betty Murphy, Lutie Humphrey, May Trotter, Mae Alston, and Marguerite Jordan maintained the record file of each boat in the statewide partyboat fleet. Dorothy Wright, Esther Thom, Katy Wade, and Joyette Mosich keypunched all log data. Dorothy Bailey supervised the machine reports, Marian Haxby and Ellen Gramm decoded, and Jeanne Cowger supervised data collection. Others, no longer with the Department of Fish and Game, participated in the work of the Biostatistical Section.

John E. Fitch, as supervisor and past editor of much experience, offered a number of suggestions to improve the bulletin. John L. Baxter, marine editor, provided guidance and prepared the manuscript for submission to the printer.

Kathleen O'Rear and Micaela Wolfe typed the final manuscript, and Constance Kenyon, Laura Richardson, Loretta Proctor, and Donna Moller typed a half-dozen predecessors. Librarian Patricia Powell prepared the list of references and Gertrude Cutler proof-read.

The marine patrol staff has been of inestimable service to this project, particularly so in the instances wherein certain partyboat operations were a bit off the beam with their log reports.

It is not possible to name everyone who has contributed to this publication. Space would not permit. Named or not, without your help this work could not have been accomplished.

My sincere thanks to each and all.

PARKE H. YOUNG
September 1969

INTRODUCTION

Partyboat fishing began in California at the turn of the 20th century with boats that seated one or two anglers, but were expensive to hire. During the 20-year period 1920-1939, however, partyboat fishing came within economic reach of a large number of anglers. Today, 1969, the industry offers a great variety of services, and fishing trips may range from hours to weeks at sea. Almost every port from Oregon to Mexico has partyboats and attendant services available.

Partyboats serve sportfishermen exclusively, although there have been abortive attempts to set up a fishing service for anglers who prefer to sell all or a part of their catch. Very recently, industry spokesmen proposed a sport-commercial partyboat service for albacore fishermen. In this case, according to the plans, all on board would be required to possess valid commercial fishing licenses, thus granting each angler the right to sell his catch. (The albacore is both a commercial and a sportfishing species.)

In California, fish taken under the authority of a commercial fishing license may be sold, but fish taken under the authority of a sportfishing license may not be sold.

Since 1916, California has been collecting and tabulating records of the commercial catch. The records include: catch (tons or pounds) by species; catch localities; expressions of fishing effort in terms of net hauls, trawls completed, etc.; kind of gear used; and other pertinent data. Information of this kind provides critical clues to the welfare of our many marine species. In 1935, the California Legislature enacted a bill requiring written catch logs from all partyboat operators. Since 1935, except for 5 years during World War II, partyboat catch logs have been collected on a routine basis.

Davies (1958), Radovich (1961), Young (1963), and Clemens and Craig (1965) based part of their studies on previously unpublished partyboat catch data. Fragmentary reports of catch have appeared in newspapers, in various California Department of Fish and Game publications, and elsewhere. This bulletin presents the reported catch of the California partyboat fishing industry for the 21-year period 1947-1967. Various aspects of the economic life of the fleet are examined, and a brief discussion is presented of the 20 most important species constituting the partyboat fishery.

DEFINITION OF TERMS

Partyboat: a boat on which fishing space and privileges are provided for a fee. The vessel is operated by a licensed skipper (guide) and crew.

Marine partyboat: any ocean or bay fishing partyboat.

All-day partyboat: a partyboat fishing for a full day, and available to any and all anglers (up to the capacity designated by the U.S. Coast Guard).

Half-day, $\frac{1}{2}$ -day partyboat: a partyboat scheduled and fishing less than a full day. Anglers pay less than full-day price. Half-day boats usually undertake two round trips per day.

Charter partyboat: a partyboat operating under charter for a specified price, time, etc. Charters are usually closed parties, as opposed to the open status of all-day and half-day boats.

Immobile marine partyboat (barge): A semi-permanently anchored barge or boat, often without propulsion engines.

Partyboat logs, catch logs: printed forms furnished to all licensed partyboat operators. On it, the skipper records vital information about each fishing trip, including the number of anglers fishing, and their catch by species (Figures 2 and 3).

Angler: One fisherman.

Angler-day: one full day of angling by one fisherman, as on an all-day boat.

$\frac{1}{2}$ *angler day*: less than one full day of angling by one fisherman, as on a half-day boat.

HISTORICAL REVIEW

Southern California

Before the turn of the century, handline sportsmen landed giant tuna in 5 minutes according to Holder (1914). Giants of other fish species also fell victim to these fishermen. There was a problem, however, and that was to get rid of the carcasses. The usual solution was to feed them to the sharks.

Repelled by this practice, Holder organized the Tuna Club of Santa Catalina Island in 1898. "The public supposed it was a fishing or angling club to catch tunas, but the original institution which I [Holder] drafted with Mr. W. H. Landers read: The Tuna Club of Santa Catalina Island, California, is hereby formed. . . . The object of this club is the protection of the game fishes . . . to encourage and foster the catching of all fishes, and especially tuna, yellowtail, seabass, black seabass, etc., with the lightest rod and reel tackle, and to discourage handline fishing, as being unsportsmanlike and against the public interest."

There were a few boats for hire at Avalon before sea game fishing became a rod and reel sport, but under the stimulus of a well-to-do Tuna Club membership, boatmen eventually numbered from 50 to 100. These boatmen, like partyboat skippers today, provided transportation, fishing know-how, and fishing know-where to their customers.

These early fishing launches were 18 to 20 feet long and seated one or two anglers. Although the launches were built by a local shipyard and were similar in appearance, values ranged from \$800 to \$3,500. Power was increased over the years, but the first engines were 8 to 10 horsepower, reaching 40 horsepower by 1912.

In August 1913, an area 3 miles wide extending entirely around Santa Catalina Island was established by law as a sportfishing reserve, the first move in a controversy (commercial vs. sportfishing) that has simmered for 50 years.

Bluefin ("leaping") tuna were the most sought after gamefish of all the fine species available. Marlin, swordfish, yellowfin tuna, albacore, giant sea bass, white seabass, yellowtail and lesser fish were normal

fare; giants of the species were trophy fish. This was said to be the "finest sea angling in the world."

The largest tuna caught on rod and reel, among Tuna Club records, weighed 251 pounds and was taken in 1899. A light tackle record, 145½ pounds, was established in 1919.

All-tackle records for other gamefish were: marlin, 405 pounds—1932; swordfish, 573 pounds—1927; giant sea bass, 493 pounds—1916; yellowtail, 60½ pounds—1908; white seabass, 60 pounds—1904; and albacore, 66¼ pounds—1911.

A report, probably released by the Tuna Club, noted "The total number of blue-fin and yellow-fin tuna taken at Catalina Island during 1919 was 911, of which 36 weighed over 100 pounds each. The total number of marlin swordfish was 114. No broadbill swordfish were captured, but a number of anglers reported unsuccessful battles with them" (Calif. Fish and Game Commission, 1920).

There were practically no facilities for ocean sportfishing except skiffs or expensive charter boats in 1919. Since then, principally during the 10 years between 1929 and 1939, a fleet of over 200 party fishing boats sprang up (Croker, 1939).

Sadler (1928) reported that from a small beginning in 1921, a large sportfishing industry had developed. Sadler was talking about barges, of which at least 15 were to be found off Santa Monica, Long Beach, and Newport Beach. The cost of a day's fishing in those days ranged from \$1.50 to \$2.00. Sadler estimated 20 to 30 partyboats were available, supporting Croker's (1939) observation that the principal growth of the fleet took place after 1929.

Clark and Croker (1933) referred to California's partyboats as "live bait boats," indicating that live bait was in use at least as early as 1925. These boats were said to go out on a regular schedule every day, and were capable of accommodating an average of about 30 fishermen.

Although tuna, giant sea bass, white sea bass, marlin and swordfish were given most of the publicity early in the century, other fish species were important to partyboat and barge fishermen.

Sadler (1928) stated that mackerel, California halibut, barracuda and "rockbass" (kelp and sand bass) were the chief species at Santa Monica, Long Beach and Newport Beach. Croker (1931) listed the species taken on a Santa Monica barge March 22, 1931: bonito—a few, sanddabs—numerous, white croaker—scorned but abundant, sablefish—a few, two or three California halibut, and Pacific mackerel. Fry (1931) believed the yellowtail was the only great gamefish that an amateur fisherman was at all likely to take in southern California waters unless financially able to charter a launch and an experienced boatman.

Croker (1941) reported upon a remarkable record of fish caught from a barge anchored off Ocean Park made by a Mr. F. R. Hering. From February 3, 1937 to October 29, 1940, Mr. Hering spent 492 days fishing from the barge. His total catch numbered 30,487 fish, mollusks, and crustaceans, for an average of 62 per day.

Following is the list of species he caught. The names are those given by Hering with our notes in parentheses.

No. caught	Species	No. caught	Species
12,342	Kingfish (white croaker)	11	Turbot
9,309	Mackerel (Pacific)	7	Whitefish (ocean)
6,084	Chinese smelt (señorita)	6	Skates
1,099	Sand dab	5	Candlefish (lizardfish or sablefish)
550	Perch	4	Barracuda
309	Horse mackerel (jack mackerel)	4	Cabazon
185	Smelt (jack and top)	3	Pearl fish (probably cusk-eels)
84	Sole	1	Anchovy
70	Sculpin	1	Cultus (lingcod)
67	Blenny	1	Ribbon fish (probably <i>Trichiurus</i>)
60	Sharks	1	White sea-bass
40	Sea robbin (cabazon)	70	Crabs
27	Queenfish	4	Mantis shrimps
21	Bass (kelp & sand bass)	2	Spiny lobsters
16	Sardines	52	Conchs
15	Halfmoon	14	Octopus
11	Chilipeppers (rockfish)	1	Cockle
11	Halibut		

Central and Northern California

Salmon sportfishing preceded salmon commercial fishing at Monterey. As early as 1893, ocean trolling for salmon was underway. Gradually sportfishermen began to take larger quantities and a commercial industry was born. In the early days of trolling, sail boats were used exclusively. By 1915, most of the sail boats had been replaced by gas motor boats. By 1917, there were 100 salmon trollers fishing out of Fort Bragg. As the salmon trolling fleet moved north, arriving at Eureka in 1922, sportfishing probably went right along. Trolling is still the principal method for taking salmon from partyboats.

Crocker (1930) noted that Princeton had a fishing fleet of eight power boats 26 to 30 feet long of typical salmon trolling type, broad beamed with flaring clipper bow. The boats were chartered to pleasure fishing parties for salmon and rockcod. Morro Bay had one 45-foot boat for pleasure fishing parties, and it was used for catching rockcod, flatfish, yellowtail (probably yellowtail rockfish) and barracuda. At Avila, several boats were available for hire to pleasure fishermen.

Clark and Crocker (1933) said charter and partyboats had been available for several years at Monterey Bay towns.

A fishing trip from Half Moon Bay (Princeton) was described by Buchanan (1933). "We board a regulation fishing launch, thirty feet overall . . . fourteen of us . . . We go out a half or three-quarters of a mile and drop lines. Only two are using poles . . . the rest . . . hand lines, 3 hooks and a 2-pound sinker. Sardines [dead] are used for bait. Black snappers [rockfish] predominate; then the red cod, deep sea cod, small yellowtail [rockfish] and sanddabs."

THE PARTYBOAT FISHING INDUSTRY 1936-1941

The partyboat fishing industry was functioning smoothly in 1941, and the then Division of Fish and Game, acting under legislative authority, was learning something about the impact of this relatively new industry on various marine fish stocks.

A note in *California Conservationist* (Calif. Dept. Nat. Res., 1941) stated "ocean angling 'opened up' this year on January 5. . . . Several partyboats operated in southern California waters with good catches of barracuda, white seabass and halibut." The presence of barracuda and white seabass in January must have been very encouraging to the skippers; it is today.

The Pearl Harbor attack in December 1941 effectively halted partyboat activities for some time. Eventually, under strict regulations, partyboats were permitted to operate from certain ports. Davis (1945a) indicated that there was one partyboat operating out of Ocean Park, three or more from Newport Harbor, one from Redondo, and two from Santa Monica. In the August, 1945 issue of *Bullets and Hooks*, Davis (1945b) pointed out "no boats are running from San Diego, Oceanside, San Clemente, Long Beach, Wilmington, San Pedro, Point Mugu, and Ventura." By November, 1945, following the cessation of World War II, plans were underway for the 1946 sportfishing season that called for new boats, super powered engines and the last word in luxury. All of the "old spots" (landings) closed during the War expected to be "back in the swing" early in the year (Davis, 1945c).

1947-1967

Immediately following World War II, there was a big rush to get into the partyboat fishing business. From 1947 through 1949, an average of 412 boats submitted catch logs (Figure 1). During the next 6 years, reporting boats increased 40% to just under 590. In more recent times, there was a marked decrease followed by a leveling off of the number of active boats in the fleet.

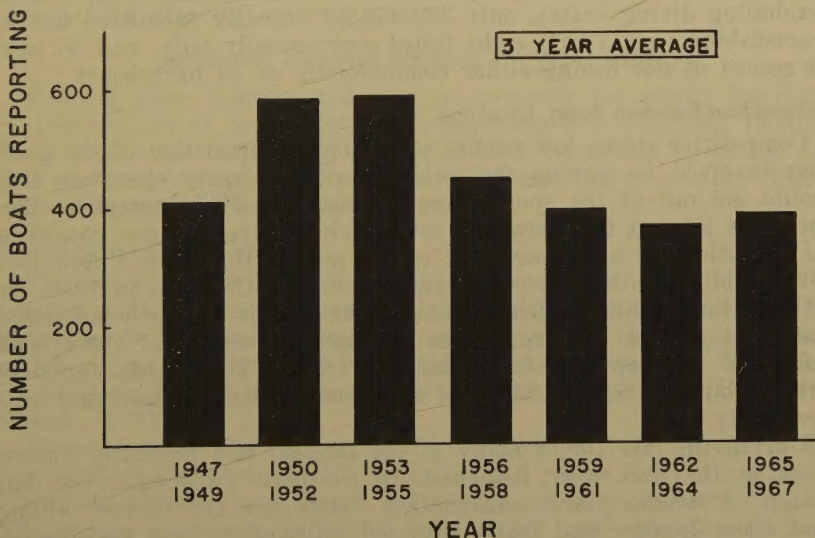


FIGURE 1. The number of California partyboats reporting catches during the 1947-1967 period, 3-year averages.

An exact count of the vessels in the partyboat fleet is not obtainable. In metropolitan areas, where there is a mass of marinas, docks, berths, and anchorages, modest but illegal partyboat fishing may be carried on with little fear of detection. The operators of some boats fail to purchase licenses. Others do purchase licenses, but fail to report fishing activities. A few boatmen license their vessels just because the cost is low (\$3 currently, but \$1 in former years). They may have no plans to fish, but "a year is a long time." Some skippers are prepared to fish, providing a fishing party becomes available, and providing the commercial salmon, crab, and albacore fisheries are not more attractive momentarily. When a boat is owned and operated by the skipper, and his passengers are friends pledged to secrecy, for-hire fishing is very difficult to prove.

As far as California law is concerned, a boat is a partyboat when operated for profit, persons are permitted to fish (or dive) therefrom, and the skipper goes with his boat. This definition applies statewide in all waters.

For example, in 1963, the statewide fleet of 523 vessels included 22 boats at freshwater lakes and Salton Sea, 9 in the Sacramento River delta area, 10 barges at anchor, 480 mobile marine craft, 1 U-drive and 1 unclassified. Included in the mobile marine group were four boats that specialized in skin and scuba diving excursions, they did not transport anglers.

Certain boats of the 1963 mobile marine angling fleet also conducted skindiving cruises and, a few of the boats of the marine fleet occasionally fished the Sacramento River delta. None of the boats listed in the remaining categories (except barges) reported marine angling.

Although there were 476 licensed mobile marine partyboats in 1963 (excluding diving boats), only 372 (78%) actually submitted marine sportsfishing logs. Thirty-eight fished commercially only, and 66 were on record as not fishing either commercially or as partyboats.

Competition Between Boats, Landings

Competitive stress, low profits, and a new appreciation of the problems involved in serving the public convinced many operators they should get out of the sportfishing business. In 1955, partyboat fleet operators learned that new and more stringent regulations governing the operations of small passenger vessels were in the offing. Public Law 519, establishing the new rules, was enacted by Congress in 1956, but active enforcement was delayed until June 1, 1958. Nevertheless, many partyboat owners withdrew from the fleet knowing that their boats would be unacceptable for passenger traffic. Those that remained either rebuilt to comply with the new specifications, or sold and built new boats.

During the late 1950's many of the largest, and presently busiest, boats in the fleet were launched. In southern California, one hull design of double plank construction dominated the 65-foot all-day boat class. Lighter and faster plywood hulls of at least two designs were in favor for charter partyboats. Double plank hulls are more costly, but it is a traditional sea hull much in demand.

The typical partyboat landing today (1969) provides a 24-hour reservation desk, a high-quality restaurant, parking, and a fishing

tackle shop (new and rented), sporting goods, and fishing licenses. Many kinds of boats and services are offered. All-day, half-day, $\frac{3}{4}$ -day, sundown fishing, charters, barges, and at certain times, extended fishing excursions to distant islands or Mexican waters are available. Many boats have a full galley, bunks for part or for all of the passengers, dual washroom facilities, a variety of electronic equipment, and one to three main engines. Live and/or dead bait is provided. Some landings, particularly in central and northern California offer cleaning, filleting, packaging, and even quick-freeze services.

Fleet maintenance is a 24-hour problem. Smaller operations depend upon boat personnel working into the night to keep the boats running. The larger landing may operate repair barges where all types of maintenance are performed.

The independent owner-skipper in southern California has either joined with the larger landings under various arrangements, or with other operators to establish independent landing facilities. Without such cooperative arrangements, the independent owner is forced to scratch around for customers, and may have difficulty in competing effectively. Further north, individual boat operations continue to exist, notably at Avila, Morro Bay, Moss Landing, Richmond, Berkeley, Bodega Bay, Eureka and Trinidad.

The partyboat fleet, as a whole, has encountered competition from a staggering number of private outboard motor boats. An estimated 68,000 boats less than 16 feet in length made use of coastal waters in 1962 (Leeds, Hill and Jewett, Inc., 1963). They were estimated to have made 780,000 ocean trips carrying three passengers per trip, approximately 2.3 million activity days for this class of small craft. Partyboat passenger loss to this "mosquito fleet" is a matter of conjecture, but it is undoubtedly serious.

Regulatory Agencies Affecting Partyboat Activity

Federal, state, county, and city governments are vitally interested in the matters of boat safety, employee-employer relations, liability, taxes, and conservation. As a consequence, partyboat operators find that government agencies influence their activities to a large degree. Among these agencies in California are:

United States Coast Guard

The Coast Guard regulates small passenger vessels to a greater extent than other agencies. Vessels carrying more than six passengers for hire must be thoroughly inspected, and the person in charge is known as an ocean operator. Pertinent information appears in *Rules and Regulations for Small Passenger Vessels*, Subchapter T (U.S. Coast Guard, 1966).

Pleasure boats carrying a California number (see California Department of Harbors and Watercraft), and where there is no formal inspection by the Coast Guard, may carry up to six persons for hire. The person in charge is known as a motor boat operator, and the publication pertaining is *Rules and Regulations for Uninspected Vessels*, Subchapter C (U.S. Coast Guard, 1967).

Upon written application for inspection from the operator, a marine inspector is assigned to survey the boat. The inspector determines

passenger (angler) capacity, and specifies whether or not alterations or repairs are necessary to meet standards. New construction must meet with Coast Guard approval all the way from the planning stage through final construction inspection. Recently, the Coast Guard has taken over admeasurement and documentation functions formerly handled by the Bureau of Customs.

The Coast Guard also establishes standards for skippers and certifies individuals meeting the standards. The certificated route of a vessel, in case of Subchapter T boats, must be met with a compatibly licensed skipper, and in case of pleasure boats, Subchapter C, it is incumbent upon the operator to possess a motor boat operators' license for the waters fished.

The location and address of the current Officer in Charge, Marine Inspection, may be determined from the back pages of Subchapters T and C, or the phone directory.

The Internal Revenue Service

The Internal Revenue Service publishes a series of pamphlets and guides that partyboat skippers find essential. A sole proprietor or partnership in a partyboat may be liable for income tax, estimated tax, and self-employment taxes. If one or more persons are employed, income tax withholding must be considered. If beer is sold on the boat, an occupational tax stamp is required.

Federal Communications Commission

Vessels transporting more than six passengers for hire while navigated on any tide water within the jurisdiction of the United States adjacent or contiguous to the open sea, or in the open sea, shall be equipped with an efficient radio-telephone installation meeting the pertinent rules and standards prescribed by the Federal Communications Commission.

Vessels subject to these rules must carry at least one operator who shall hold at least a Radio-telephone Third Class Operator Permit. To obtain such a license, an applicant must successfully complete a written examination.

Bureau of Customs (Marine Division)

This agency is charged with the administration of the navigation laws of the United States, a body of law concerned primarily with ships and those who own and operate them. Boats fishing foreign waters or visiting foreign ports (Mexico) are bound by Customs regulations.

California Public Utilities Commission

"Every operator of a 'for hire' vessel, as defined in section 4661 of the Public Utilities Code, shall provide . . . adequate protection against liability" (Calif. Public Utilities Comm., 1964). Dollar coverages needed are specified according to the passenger capacity of the vessel. Evidence of liability insurance coverage must be filed with the Commission's San Francisco office.

Although hull insurance is not required by law, many boat operators pay an additional premium and arrange for hull insurance to go along with the liability policy.

California Board of Equalization

Resale of food, soft drinks, beer and other merchandise means a "sellers permit" must be obtained. Sales taxes are involved.

California Alcoholic Beverage Control Department

This agency permits the sale of beer only when the boat is underway or anchored in the water. Beer license applicants undergo a thorough screening.

California Restaurant Act

Sets forth regulations governing restaurant (galley) sanitation. The administration of this act is in the hands of local health authorities, city or county, depending on the area.

California Department of Employment

Employers are required to register with the Department of Employment within 15 days after becoming subject to the California Unemployment Insurance Code. If a deckhand is hired, and wages in excess of \$100 are paid in any calendar quarter, the employer is subject to terms of the code.

Employer contributions support unemployment insurance. Wage earner contributions support disability insurance. Disability insurance covers non-occupational illness or injury.

Workmen's Compensation Insurance

Briefly, workmen's compensation laws impose a liability on the employer to bear the cost of occupational injuries to his employees. Insurance allows the employer to transfer his liability to an insurance firm. Therefore, it is the obligation of the skipper as the employer to provide workmen's compensation coverage for all his employees. Failure to insure is a misdemeanor.

California State Lands Division

Anchorage or moorings, on State owned and ungranted tide and submerged areas, must be arranged for with the Division. An offshore anchorage near a public pier or jetty falls within their jurisdiction.

California Department of Harbors and Watercraft

"Every undocumented vessel using the waters of this state shall be numbered" (Calif. Dept. Harbors and Watercraft, 1967a). "The owner of each vessel requiring numbering by this state shall file an initial application for number with the department at its Sacramento office or an agent authorized by the department on forms approved by the [Harbors and Watercraft] commission" (Calif. Dept. Harbors and Watercraft, 1967b).

There are exceptions to the numbering and registration requirements, but undocumented partyboats are not among the exceptions.

California Department of Fish and Game

"Every person who owns or operates a vessel in public waters in connection with fishing operations for profit in this State, or bringing fish into this State, or who, for profit, permits persons to fish therefrom, shall file a boat registration statement with the Department . . ." (Calif. Dept. Fish and Game, 1965a).

In addition, "The owner of any boat or vessel who, for profit, permits any person to fish therefrom, shall procure a fishing partyboat license. This article applies only to a boat or vessel whose owner or his employee or other representative is with it when it is used for fishing" (Calif. Dept. Fish and Game, 1965b).

Partyboat Catch Records. "The holder of a [partyboat] license shall keep a true record . . . of all fish taken . . ." (Calif. Dept. Fish and Game, 1965c). This information is logged on official forms provided by the Department of Fish and Game (Figures 2 and 3).

		KIND OF FISH CAUGHT	NUMBER	AVERAGE WT.
<i>Redwing</i> Boat Name 4567 Fish and Game No. <i>Sausalito</i> Town of Landing Skipper: Please make a separate log for each trip of the day.		ROCKFISH (Cod)	7	2
		LINGCOD		
		CABEZON		
		SALMON	13	7
		STRIPED BASS	1	8
		MACKEREL (Pacific)		
		MACKEREL (Jack)		
		HALIBUT		
		OTHER FLATFISH		
		NAME OTHER FISH	7 undersized salmon released	
June 17 1961 Month Day Year 4 No. of Hours Fished (Hours Lines in Water) 8 Number of Anglers 456 Block Number Where Most Fish Caught No 27701				

FG 623. DUF ① Δ r ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮ ⑯ ⑰ ⑱ ⑲ ⑳ ㉑ ㉒ ㉓ ㉔ ㉕ ㉖ ㉗ ㉘ ㉙ ㉚ ㉛ ㉜ ㉝ ㉞ ㉟ ㊱ ㊲ ㊳ ㊴ ㊵ ㊶ ㊷ ㊸ ㊹ ㊺

FIGURE 2. An example of a log from a central-northern California partyboat.

		KIND OF FISH CAUGHT	NUMBER	AVERAGE WT.	
<i>Thief</i> Boat Name 1234 Fish and Game No. <i>Marina</i> Town of Landing Skipper: Please make a separate log for each trip of the day.	SURFACE FISH	ALBACORE			
		BARRACUDA	25	2½	
		BONITO	50	4	
		KELP BASS	61	2	
		WHITE SEABASS	2	5	
		YELLOWTAIL	1	12	
	BOTTOM FISH	ROCKFISH (Cod)	3	1	
		SCULPIN	1	1	
		HALIBUT	2	4	
		OTHER FLATFISH			
		CABEZON			
		LINGCOD			
		MACKEREL (Greenback)			
		SHEEP-HEAD	3	3	
		NAME OTHER FISH	Cat Blue perch		
			2	1	
June 17 '61 Month Day Year 5½ No. of Hours Fished (Hours Lines in Water) 19 Number of Anglers 761 Block Number Where Most Fish Caught No 168214					

FG 655. 52927 12-40 100M ① r ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮ ⑯ ⑰ ⑱ ⑲ ⑳ ㉑ ㉒ ㉓ ㉔ ㉕ ㉖ ㉗ ㉘ ㉙ ㉚ ㉛ ㉜ ㉝ ㉞ ㉟ ㊱ ㊲ ㊳ ㊴ ㊵ ㊶ ㊷ ㊸ ㊹ ㊺

FIGURE 3. An example of a log from a southern California partyboat.

"The records shall show (1) each day's operation, (2) the area fished, (3) the number of persons fishing, (4) an accurate count of the number of fish taken, by species, and their approximate weight, (5) the number of hours of actual fishing, not counting travel time."

"All records of the sportfish [partyboat] catch must be completed between the time fishing is stopped at the end of each trip and before the passengers are disembarked at the pier, dock or harbor."

"If the sportfishing vessel has not operated during any one month, the owner or operator shall so notify the Department of Fish and Game not later than the fifth day of the following month" (Calif. Fish and Game Comm., 1967).

From the information supplied by boat personnel, many combinations of data are possible. Most important are catch-per-unit of effort statistics. Logs provide information on catch by port; by angler; catch-per-angler-hour, month, and year; and catch by boat, individually or collectively. All of these elements can be related to a single species, or to a group of species if so desired. Fisheries scientists employ the measure or measures of catch most appropriate for the problem at hand.

During a 5-year period, 1947-1951, the logs of 587 marine partyboats were checked for accuracy as their passengers were landed at the dock (Baxter and Young, 1953). Log accuracy was high for common and prize gamefish, but scaled down to less than 70% for some incidental species. No attempt has been made to check partyboats at the landings since 1951, but extensive efforts have been made to promote accurate record keeping.

Included within each log book is a fisheries chart or charts, that enables the skipper to determine the approximate location where fishing took place.

When a partyboat has not been in operation during the month, the skipper is required to notify the Department of Fish and Game. A form is provided for that purpose (Figure 4).

A photograph of a rectangular post-paid envelope. The envelope is light-colored with a darker rectangular label in the center. The label contains the text: "I Did Not Fish During The Month of _____ 19____". Below this, there are two horizontal lines. The left line is labeled "BOAT NAME" and the right line is labeled "F & G No.". The envelope is shown against a dark, textured background.

FIGURE 4. Either a log, or a "no fishing" report is required monthly. This post-paid envelope, provided to all partyboat operators, is used to send in logs. The block space on the back, as above, is a convenient way to report "no fishing."

From 1947 through 1959, marine angling effort was measured in only one way, angler days (page 6). During this 11-year period, no attempt was made to compile angler (head) counts.

During 1960 and 1961, effort was measured in two ways—number of angler days and number of angler hours. In addition, head counts of anglers were compiled. Angler day and head counts for the entire partyboat fleet for the two years differed by about 21.5%:

Year	Angler days	Anglers (head count)	Variance (percent)
1960.....	516,255	637,498	23
1961.....	495,805	593,916	20

By using the average variance for these 2 years, it is possible to estimate the approximate number of anglers in any of the years 1947 through 1959, assuming conditions within the fleet did not change significantly. For example, in 1957, 536,175 angler days were expended in the partyboat fishery. This number, raised by the factor 21.5% = 651,452 anglers. Angler hours, also recorded in 1960, for the first time, are ideal for measuring angling effort because, unlike angler days, they are unalterable. An angler day can range from 2 to 12 hours, depending upon weather, distance traveled, fishing success, and other factors. An angler day averages about 5 hours in southern California, but is less to the north. The Department of Fish and Game discontinued angler days as a measure of marine partyboat fishing effort beginning in 1962 (Appendixes 2-31).

Areas of Operation

The California partyboat fleet, spread from Oregon to Mexico, occupies four biologically distinct areas. The northern California area, Bodega Bay to Oregon, is an open-coast stretch of cold water and frequent rough weather. Salmon is king, but rockfish, lingcod and cabezon are also sought by anglers. At the southern end of this area (i.e., Bodega Bay), salmon are not quite so dependable and rockfish are the principal targets. More anglers can be carried per unit of deck space because less room is needed than for salmon trolling.

The second area, San Francisco, San Pablo, and Suisun Bays, and the Sacramento River delta, is justifiably famous for salmon and striped bass. Salmon are taken from the open sea outside the Golden Gate, while striped bass are largely concentrated within the Bay and Delta. A large segment of California's marine anglers lives in the area, and supports a large fleet of partyboats at numerous ports and landings. For brevity, this will be referred to as the bays-delta area.

Central California (Princeton to Point Arguello) coastal weather is milder than that of northern California. Rockfish and other bottom species predominate, although salmon furnish much sport at Moss Landing and Monterey in some years. Boats are larger and can carry more fishermen than do northern California and bays-delta area boats.

The southern California area lies between Gaviota (30 miles west of Santa Barbara) and Los Coronados Islands and includes part of the Baja California coast where long-range partyboats often will fish. Anglers, using light tackle and live bait, generally fish on or just below the surface. The most desirable species include barracuda, bonito, yellowtail, bass and others. Rockfish, lingcod, California halibut, scul-

pin and other bottom dwelling species are available, and important, but usually of second choice. Bottom varieties are generally better table fare (i.e., more tasty), but lack the vigor and dash desired by sportsmen.

Economics of the Partyboat Fleet

A partyboat operator often will be in business because he loves to fish, a very common motive throughout the fleet. An investment in a partyboat, however, is a sobering experience. A sound, well-equipped boat suitable for angler traffic can be purchased for \$1,000 per foot. Prices range far above and well below this figure, but it is a reasonable starting point. To obtain a fair return upon his investment, the operator must reckon with a number of important elements. How many anglers will the boat legally carry? What is the probable average load? How many trips will be needed to make the venture pay? How much competition will there be? What species of fish are in demand, and what is the status of their abundance. Is the fishing season restricted? What opportunities are there to fish commercially in the off season? These and other questions need to be answered, as far as possible, before the boat is selected and purchased.

Taking some of these factors into consideration, a detailed study of area fleet activities for 1 year, 1963, is presented. The data were obtained from partyboat logs, partyboat registration, and license applications. The year 1963 was chosen because the data were current and available when this report was contemplated. I do not believe the results, as given here, would be significantly different if the base year had been 5 years earlier or several years later. Some aspects of fleet economics, desirable as they might be, were not available to the Department of Fish and Game.

TABLE 1
Northern California Mobile Marine Partyboats, 1963

Port	Number of boats						Average angler capacity of active boats	Average angler load of active boats
	Licensed home port	Submitting marine sportfishing logs	Fishing sport and commercial	Fishing commercial only	Apparently not fishing			
Crescent City.....	1	1	1	0	0	6.0	5.0	
Albion.....	2	1	1	1	0	6.0	4.7	
Eureka.....	5	5	3	0	0	8.6	5.5	
Fort Bragg.....	4	3	1	0	1	9.3	6.1	
Trinidad.....	4	2	2	2	0	6.5	5.2	
Dillon Beach.....	1	1	0	0	0	6.0	3.6	
Bodega Bay.....	8	5	1	2	1	14.6	8.3	
Marshall.....	1	0	0	0	1	----	----	
Total.....	26	18	9	5	3			

Northern California

There were 26 licensed partyboats in the northern California area in 1963, approximately 5% of the statewide fleet. Sportfishing logs were submitted from 18 boats of which 9 fished both sport and com-

mercial. Five of the non-reporting boats fished commercial only, and three apparently didn't fish (Table 1).

Sportfishing. The capacity of the 18 active boats ranged from 6 to 28 anglers, and averaged 9.7. During 1963, the northern fleet logged 7,978 anglers, about 68% of their actual capacity of 11,710 anglers if each had been fully loaded each trip. The average boat load was 6.1 anglers for 1,302 trips.

Most of the boats fished for salmon. They were smaller than the Bodega Bay rockfish partyboats, but carried angler loads that were closer to capacity (Table 1).

These boats made from 1 to 153 trips during the year, averaging 72.3. Although partyboats operated in all months at Bodega Bay, 90% of the northern California trips were made from June through September. Trinidad and Fort Bragg skippers were particularly busy in the summer months, making two fishing trips per day more often than one. Two-trip days were also common at Crescent City and Albion. Bodega Bay skippers apparently were fully occupied trying to fill their limit of 20 rockfish (per angler), and did not make more than one trip per day.

All operators recorded the hours of fishing time expended on each trip. Crescent City and Trinidad skippers spent about 4 hours per trip. These skippers were fishing for salmon, as were the Eureka boatmen who averaged $5\frac{3}{4}$ hours per trip. Probably the Eureka fleet spent some time trolling within Humboldt Bay before reaching the fishing grounds outside of the harbor. Bodega Bay skippers also fished $5\frac{3}{4}$ hours, probably because rockfish bag limits were far more generous than those on salmon, requiring more time to make a satisfactory catch.

Salmon were by far the most sought after species at Eureka, Fort Bragg, and Trinidad. Rockfish and salmon shared honors at Crescent City and Albion. Bodega Bay and Dillon Beach partyboaters landed heavy catches of rockfish, and more lingcod than salmon (Table 2).

TABLE 2
Partyboat Catch Per Angler, Species by Port of Landing
Northern California Area, 1963

Port	Species caught									Total fish	Total anglers	Catch per angler all species
	Salmon no.	Catch per angler	Rockfish no.	Catch per angler	Lingcod no.	Catch per angler	Cabazon no.	Catch per angler	Misc. no.			
Crescent City-												
Albion-----	446	.76	331	.56	4	--	--	--	1	782	588	1.33
Eureka-----	2,505	1.64	396	.26	1	--	--	--	22	2,924	1,531	1.91
Fort Bragg-----	2,821	1.24	908	.40	78	--	21	--	59	3,887	2,282	1.70
Trinidad-----	1,555	1.33	76	--	2	--	--	--	3	1,636	1,173	1.39
Bodega Bay-												
Dillon Beach.	447	.19	18,242	7.59	562	.23	115	--	184	19,550	2,404	8.13

Boat Age and Length. All 18 reporting partyboats were built during the 10-year period 1941 to 1950. Since 1950 (up to 1964), only

three new boats joined the small northern fleet (Figure 5). Because of the short fishing season, scanty passenger loads, and abundant competition, additions to the northern fleet may continue at a slow pace.

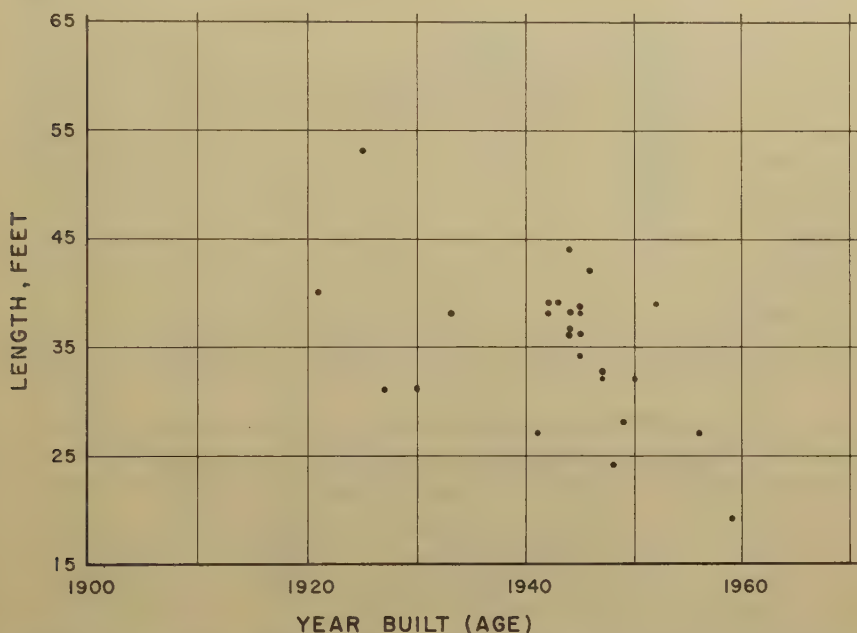


FIGURE 5. Year built (age) and length of the 26 registered partyboats in the northern California fleet, 1963.

Forty-two percent of the 26 registered boats were shorter than 35 feet, and except for one 53-foot boat, the remaining craft were 35 to 45 feet long (Figure 5).

Commercial Fishing. Fourteen of the 26 boats undertook some commercial fishing activities. Of the nine partyboats engaged in both sport and commercial fishing, one landed 4,665 pounds of crab and 649 pounds of salmon. Commercial catches of the remaining eight vessels ranged from 47 to 977 pounds, and consisted of salmon, crab, rockfish, and lingcod.

Bays-Delta Area

In 1963, 145 bays-delta area boats were issued partyboat licenses. Ten boats were based too far inland to fish marine waters, or made no effort to take marine species, according to the logs received. At year's end, 111 of the 135 marine partyboats had submitted sportfishing logs. Of the 24 boats not submitting logs, 15 fished only commercially, and 9 apparently did no fishing of any kind (Table 3).

Sportfishing. The 111 active partyboats of the bays-delta fleet logged 77,641 anglers on 8,622 trips. The average capacity of these boats was 17.2, but the average load was 9 anglers (Table 4). If all boats had been fully loaded for each trip, 159,035 anglers would have

TABLE 3
Bays-Delta Area Partyboats, 1963

Port	Number of boats						
	Licensed home port	Classified mobile marine partyboats	Submitting marine sportfishing logs	Fishing sport and commercial	Fishing commercial only	Apparently not fishing	Angler capacity average active boats
San Francisco.....	55	55	38	8	12	5	14.7
Berkeley.....	26	26	24	3	2	--	17.2
Oakland-Alameda.....	5	5	3	--	--	2	10.7
Sausalito.....	28	28	27	11	--	1	17.7
Richmond.....	15	14	13	3	1	--	20.0
Rodeo.....	4	3	3	--	--	--	25.7
Crockett-Vallejo.....	8	4	3	--	--	1	28.3
Antioch, Isleton, Bethel Island.....	4	0	--	--	--	--	----
Total.....	145	135	111	25	15	9	----

TABLE 4
Angler Capacity, Angler Load, and Percent of Capacity Utilized
Bays-Delta Area Marine Partyboats, 1963

	86 partyboats sportfishers only	25 sport-commercial partyboats	111 boats combined
Angler capacity, total.....	1,441	463	1,904
Angler capacity, average.....	16.8	18.5	17.2
Trips logged, total.....	6,334	2,288	8,622
Anglers carried, total.....	54,389	23,252	77,641
Angler load, average.....	8.6	10.2	9.0
Percent capacity utilized*.....	50.8	44.7	48.8

* (Total anglers actually carried)/(Maximum possible anglers for trips actually made).

been tallied, more than double the actual count. The 25 sport-commercial partyboats (Table 4) utilized 6% less of their capacity than the sportfishers only group. Possibly the skippers of the sport-commercial group did not actively seek sportfishing parties.

Eighty-six boats fished for sport only. Records showed that the number of trips logged per boat ranged from 1 to 250, averaging 74. (This is low compared to the 93-trip average of the 25-boat sport-commercial group.) Presumably, many of the 86 sportfishers were owned (operated) by "week-end" skippers. Such skippers are often satisfied to recover operational expenses and have little desire or opportunity to fish more extensively. Approximately one-half of these 86 boats averaged one trip or less per week during 1963. On the other hand, one-quarter of the boats logged over 50% of the total trips.

Bays-delta area partyboats fished 4 to 6 hours a day, remaining at sea about the same length of time as did the northern area boats (Table 5). Richmond boats averaged less fishing time per trip than boats at other bay ports, but Richmond also had far more two-trip days,

TABLE 5
Fish Catch, Anglers, and Angler Hours Reported, by Port
Bays-Delta Area Marine Partyboats, 1963

Port	Number of fish	Number of anglers	Number of angler hours	Hours fished per trip, average
San Francisco.....	35,170	18,888	97,248.2	5.1
Sausalito.....	36,256	20,570	114,982.5	5.6
Berkeley.....	36,246	19,412	104,111.2	5.4
Richmond.....	56,495	14,593	60,899.4	4.2
Oakland-Alameda.....	4,061	1,664	8,904.4	5.4
Crockett-Rodeo.....	3,706	1,377	8,137.0	5.9
Total.....	171,934	76,504	394,282.7	5.2

accounting for approximately 41% of 1,167 trips logged. Few of the Berkeley and San Francisco operators reported two-trip days, but those at Rodeo and Crockett showed a high percentage of two-trip days.

During 1963, Sausalito operators had a decided preference for salmon fishing and all but ignored striped bass, rockfish, and jack mackerel (Table 6). San Francisco boats engaged in both salmon and

TABLE 6
Catch Per Angler, Four Principal Species, by Port
Bays-Delta Area Marine Partyboats, 1963

	Salmon		Striped bass		Rockfish		Jack mackerel		Catch per angler overall
	Catch	Catch per angler	Catch	Catch per angler	Catch	Catch per angler	Catch	Catch per angler	
San Francisco.....	18,782	1.0	12,853	.7	1,060	---	1,934	.1	1.9
Sausalito.....	26,564	1.3	4,007	.2	2,218	.1	2,244	.1	1.8
Berkeley.....	13,791	.7	15,086	.8	4,700	.2	1,350	---	1.9
Richmond.....	1,889	.1	23,372	1.6	26,287	1.8	824	---	3.9
Oakland-Alameda.....	1,977	1.2	511	.3	1,420	.9	87	---	2.4
Rodeo-Crockett.....	29	---	2,722	2.0	301	.2	146	.1	2.7

striped bass fishing, but preferred salmon. Berkeley skippers liked salmon and striped bass about equally. Richmond operators ignored salmon in favor of a striped bass-rockfish combination. Rodeo and Crockett, in the heart of the striped bass country, confined their efforts almost exclusively to this species, although a few rockfish and jack mackerel were logged.

In the bays-delta area, rockfish have never received much attention. Miller and Gotshall (1965) found that 29 species of rockfish entered the Crescent City to Avila partyboat catch. If salmon and striped bass were less abundant, or not available, the bays-delta rockfish catch would increase many fold.

Commercial Fishing. Landings of the 25 partyboats that also fished commercially ranged from 36 pounds of salmon to 38,240 pounds of shark, lingcod, salmon and crab mixed. Only five of these boats landed enough commercial fish to make a living, and only two were really profitable operations. These five boats logged 181 partyboat trips in addition to their commercial ventures. The remaining 20 vessels logged 2,152 partyboat trips, an average of 108 each, or slightly more than two trips per week for the year.

Annual market landings of the 15 licensed partyboats that did not submit sportfishing logs ranged from 39 pounds of salmon to 145,000 pounds of albacore; the group averaged 21,000 pounds of all species.

Boat Age and Length. Seventy-seven partyboats (54.6%) of the 1963 bays-delta fleet were built in the 10-year period 1941-1950. Thirty-three were launched between 1913 and 1940, 31 from 1951 to 1963, and 4 at unknown dates (Figure 6). In a very few years, approximately 78% of the bay fleet will be 20 years old or older.

Although boat lengths ranged from 25 to 65 feet, most (62%) were 35 to 45 feet long (Figure 6).

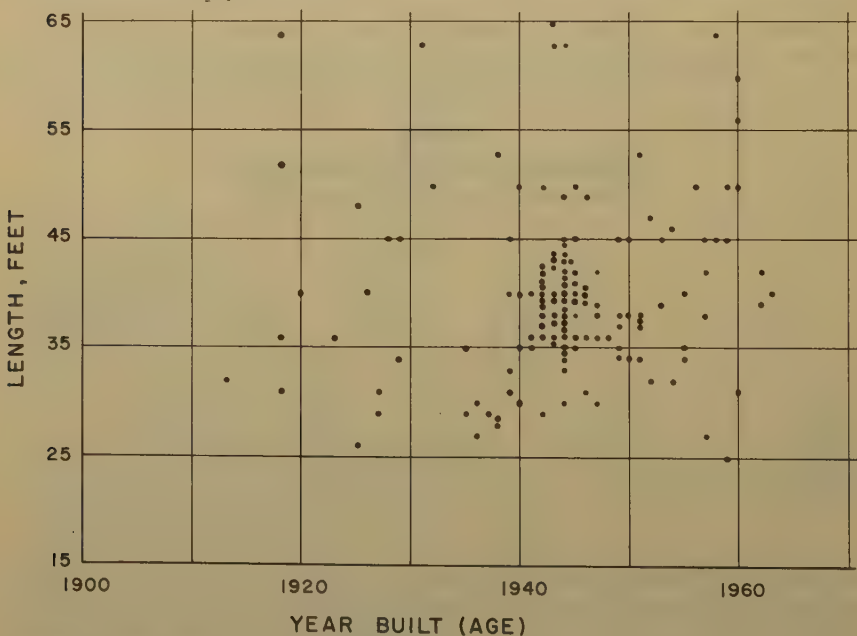


FIGURE 6. Year built (age) and length of 141 registered partyboats in the bays-delta fleet, 1963.

Angler Capacity. As boat length increases, angler capacity tends to increase. Angler capacity is determined for each vessel by the United States Coast Guard, and at least two factors are of primary importance. Fishing is not permitted on any part of the vessel deck lacking guard rails. Many older boats in the California fleet have no guard rails along the bow, and are so constructed that rail installation is not feasible. Boats lacking certain designated safety features, such as water tight

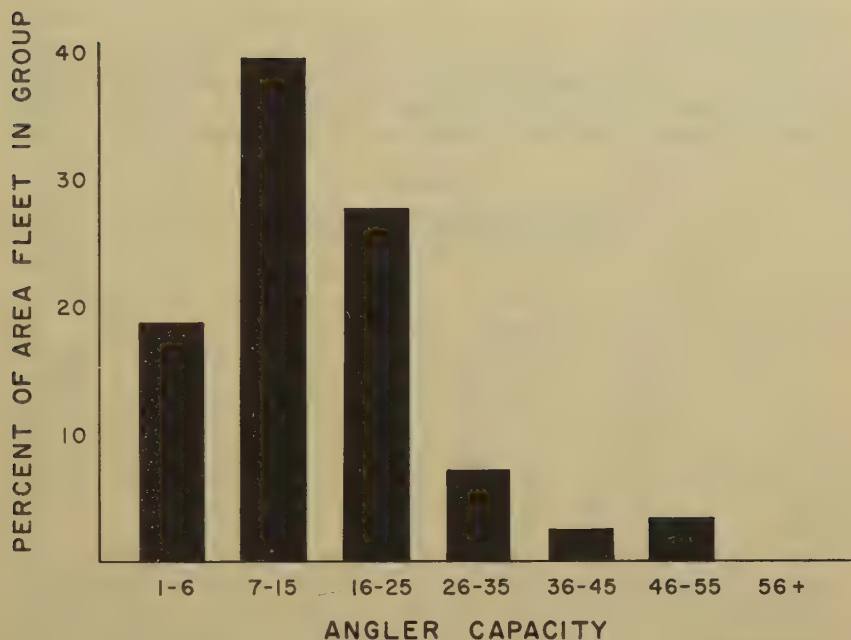


FIGURE 7. Percent of bays-delta fleet by angler capacity, 111 reporting partyboats, 1963.

bulkheads, are not permitted to carry more than six passengers, even though deck space would accommodate considerably greater numbers.

Twenty-one (19%) of the 111 bays-delta partyboats reporting marine sportfishing in 1963 were limited to six anglers (Figure 7). Lengths of these ranged from 26 to 40 feet, and averaged 34.3 feet. Forty-four boats (40%) were licensed to carry 7 to 15 anglers, and these boats averaged 39.5 feet in length, and when fully loaded could carry 11.4 anglers on the average. This group of boats, although only slightly longer than the six-passenger group, was permitted to carry almost twice the angler load. The remaining vessels of the area fleet were authorized: 16-25 anglers, 31 boats; 26-35 anglers, 8 boats; 36-45, 3 boats; 46-55 anglers, 4 boats. Bays-delta partyboats carried less than 50% of their total capacity (Table 4). A 30-passenger boat operating at 50% of capacity, and at an income level of \$10 per angler (a generous figure in 1963), would have grossed \$15,000 in 100 trips. Ninety percent of the bays-delta fleet carried fewer than 30 anglers maximum, and averaged only 78 trips per boat in 1963.

Bays-delta anglers landed approximately two fish per 5-hour trip. Anglers fishing from San Francisco and Sausalito based partyboats had their greatest success with salmon, 1.0 and 1.3 fish per trip, respectively. Berkeley anglers were willing to fish for either salmon or striped bass, taking both with about equal success. Richmond anglers landed striped bass and rockfish about equally for a combined average of 3.4 fish in slightly over 4 hours. Rodeo-Crockett anglers landed 2.7 fish per 6-hour trip, but the catch was primarily of striped bass (Table 5 and 6).

imity of the fishing area to the landing; (ii) the degree of fishing success experienced at the various "cod banks," usually better at the more remote grounds; and (iii) the species of fish sought. Morro Bay boats fished 2.5 to 4.0 hours normally, but when albacore appeared offshore in August, daily trips averaged 7.5 hours, ranging from 4 to 14.

TABLE 8
Fish Catch, Anglers, and Angler Hours Reported, by Port
Central California Marine Partyboats, 1963

Port	Number of fish	Number of anglers	Number of angler hours	Hours fished per trip, average
Princeton.....	103,707	10,450	53,049.0	5.1
Santa Cruz.....	29,840	4,531	31,541.0	7.0
Moss Landing.....	576	525	3,790.0	7.2
Monterey.....	158,342	10,663	48,248.4	4.5
Avila.....	41,368	5,069	21,678.6	4.3
Morro Bay.....	248,538	20,396	116,976.3	5.7

Most skippers in the central California area fished for deep and shallow water rockfish, lingcod, cabezon, and other bottomfish. Salmon trollers were (usually are) available at Moss Landing and Monterey, but less frequently at other ports. Salmon trolling in the central California area has not been featured to the extent it has been in the northern California and bays-delta areas. Central California anglers averaged 11.3 fish-per-man in 1963, with rockfish predominating (Table 9). Miller and Gotshall (1965) found that in 1960 Crescent City to Avila partyboat anglers averaged 11.1 bottomfish per day.

TABLE 9
Catch Per Angler, Four Principal Species, by Port
Central California Marine Partyboats, 1963

Port	Salmon		Rockfish		Lingcod		Albacore		Catch per angler overall
	Catch	Catch per angler	Catch	Catch per angler	Catch	Catch per angler	Catch	Catch per angler	
Princeton.....	48	---	98,531	9.4	3,920	.4	--	---	9.9
Santa Cruz.....	233	---	26,822	5.9	1,931	.4	---	---	6.6
Moss Landing.....	373	.7	156	.3	12	---	16	---	1.1
Monterey.....	311	---	153,282	14.4	2,588	.2	31	---	14.8
Morro Bay.....	153	---	221,225	10.8	9,221	.5	8,169	.4	12.2
Avila.....	582	.1	38,627	7.6	908	.2	--	---	8.2

Sportfishing regulations in force during 1963 permitted anglers to take 20 rockfish and 10 lingcod per day without regard to size. Ten lingcod would be a very high catch, and it wouldn't happen often, but anglers often take 20 rockfish. Salmon fishermen were limited to three fish, 22 inches long or longer, except that one salmon of not less than 20 inches could be possessed.

Commercial Fishing. Nineteen vessels of the central California fleet fished commercially, using hook and line almost exclusively, including the five that did not report partyboat fishing. Commercial catches of these five ranged from 717 to 17,000 pounds of salmon and albacore. Only one of the 19 vessels landed commercial species other than salmon and albacore. All Moss Landing and 40% of the Monterey partyboats landed commercial catches, but commercial fishing was minor or non-existent at other central California ports.

Fourteen boats reported both sport and commercial fishing activity. Of this group the boats logging the fewest sportfishing trips tended to land the heaviest commercial catches, with one notable exception (Figure 9).

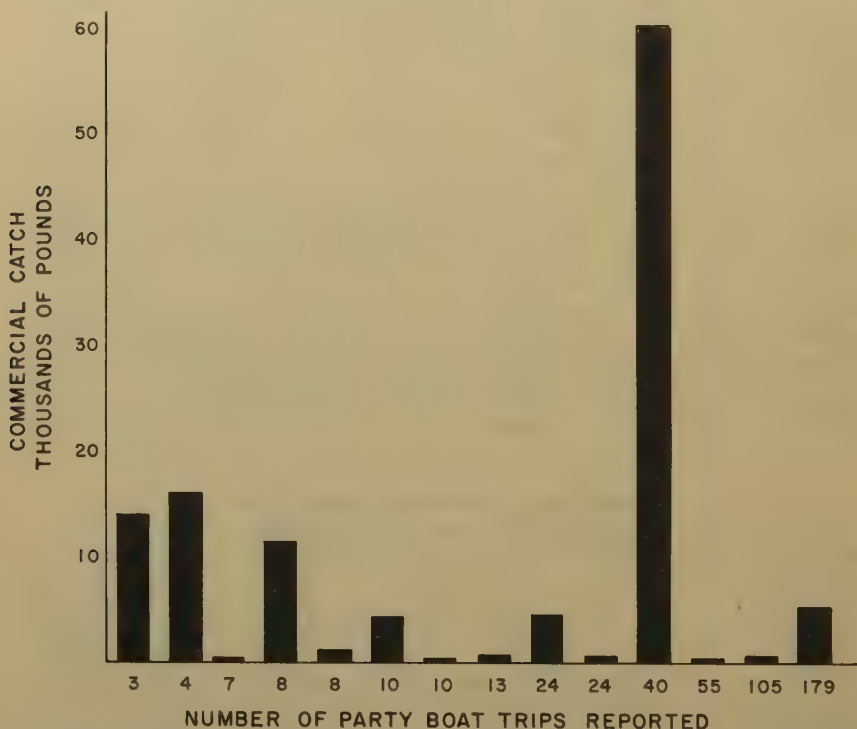


FIGURE 9. Commercial landings, and number of sportfishing trips reported, 14 sport-commercial fishing boats of the central California fleet, 1963.

Boat Age and Length. Approximately 50% of the central California fleet was built during the 10-year period 1940-1949. Thirty-four percent was launched during 1950 to 1963. A few old-time boats, around 40 years of age, were either still active in 1963, or were kept around in case of need (Figure 10).

The bulk of the central California fleet built prior to 1950 was made up of 36- to 50-foot vessels. Since 1950, the trend has been to build boats of the 55-foot class, although a few 40-foot vessels have been launched (Figure 10).

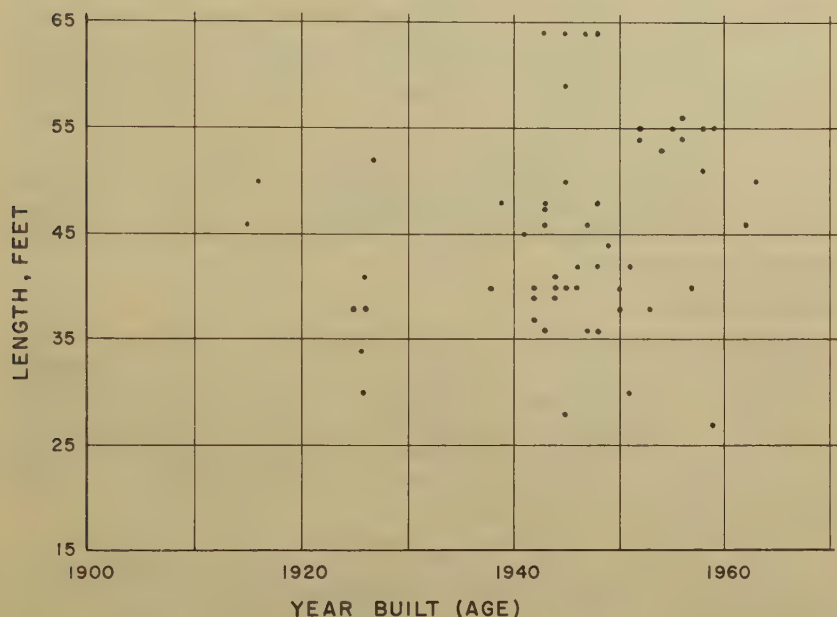


FIGURE 10. Year built (age) and length of 56 registered partyboats, central California fleet, 1963.

Angler Capacity. The capacity of the boats of the central California fleet was almost double that of the bays-delta fleet, averaging 31.9 compared to 17.2 anglers (Table 10). Although this fleet had twice the capacity, angler loads were only 50% greater, consequently, the central California fleet utilized less than 35% of capacity.

TABLE 10
Angler Capacity, Angler Load, and Percent of Capacity Utilized
Central California Marine Partyboats, 1963

	34 partyboats sportfishers only	14 sport- commercial partyboats	48 boats combined
Angler capacity, total.....	1,270	259	1,529
Angler capacity, average.....	37.4	18.5	31.9
Trips logged, total.....	3,106	490	3,596
Anglers carried, total.....	45,897	5,363	51,260
Angler load, average.....	14.8	10.9	14.3
Percent capacity utilized.....	35.3	31.4	34.8

A high percentage of the boats operated on a daily fixed schedule. Occasionally, perhaps frequently, when angler loads were light, fishing was conducted at a financial loss to the operator. Although runs of salmon and albacore create much excitement, and angler loads increase sharply, this is not a dependable phenomenon in the central California area.

Of the 48 partyboats that reported sportfishing activities, 6 were licensed to carry 6 anglers, 1 was limited to 10, and the remaining boats were capable of handling from 16 to more than 56 passengers as follows: 9 with 16-25 anglers; 11 with 26-35; 10 with 36-45; 7 with 46-55; and 4 with 56 or more.

The average angler capacity of the partyboats at Princeton, Santa Cruz, Monterey, Avila, and Morro Bay ranged from 32 to 46 anglers. At Moss Landing, seven small boats, which were part time partyboats and part time commercial salmon trollers, could carry eight anglers each, on the average.

Southern California

All major and most minor ports between Santa Barbara and San Diego harbored partyboats in 1963. Of 256 licensed and 3 non-licensed boats, 197 submitted sportfishing logs. Sixty-two boats, licensed to carry passengers, did not report sportfishing activity. Forty-nine of the 62 failed to participate in any fishing, commercial or sport. Fifty boats, including 13 of those failing to report sportfishing activity, fished commercially (Table 11).

TABLE 11
Southern California Marine Partyboats, 1963

Port	Number of boats					Average angler capacity, reporting boats
	Licensed home port	Submitting marine sportfishing logs ³	Fishing sport and commercial	Fishing commercial only	Apparently not fishing	
Santa Barbara.....	4	2	--	--	2	46.3
Port Hueneme.....	9	7(+2)	2(+1)	1	1	40.1
Malibu Beach.....	6	5	--	--	1	68.8
Santa Monica.....	6	4	--	1	1	32.6
Redondo Beach.....	6	4	--	--	2	52.5
San Pedro.....	40 ¹	35(+1)	8(+1)	1	4	36.3
Wilmington.....	23	17	--	--	6	14.4
Long Beach.....	56 ²	41	12	2	13	34.3
Seal, Huntington Beaches.....	3	2	--	--	1	48.5
Newport Beach-Balboa.....	29	22	4	5	2	34.0
San Clemente.....	7	7	--	--	--	34.7
Oceanside.....	9	7	--	--	2	37.6
San Diego, Mission Bay.....	58	41	9	3	14	38.2
Total.....	256	194(+3)	35(+2)	13	49	

¹ 3 boats chartered by skin-divers excluded.

² 1 boat chartered by skin-divers excluded.

³ 3 unlicensed boats submitted marine sportfishing logs, 2 of these fished commercially. These are indicated by (+) after appropriate total.

The catch and diving effort from three charter boats that catered to divers exclusively, and from the few diving trips undertaken by partyboats, have been summarized by Wood (1967). The three diving boats, and the log data derived from the partyboat diving trips have been excluded from this discussion.

Sportfishing. Southern California partyboats logged 20,673 trips in 1963, for an average of 105 trips each. These boats reported carrying

505,459 anglers, or about 24.5 per boat trip. Their average capacity was 35.9 anglers, almost one-third more than carried. The total potential angler load, based on the trips reported, was 1,055,460 fishermen. Less than 50 percent of the total angler capacity was utilized in 1963 (Table 12).

TABLE 12
Angler Capacity, Angler Load, and Percent of Capacity Utilized
Southern California Marine Partyboats, 1963

	160 partyboats sportfishers only	37 sport- commercial partyboats	197 boats combined
Angler capacity, total.....	5,672	1,394	7,066
Angler capacity, average.....	35.5	37.7	35.9
Trips logged, total.....	17,389	3,284	20,673
Anglers carried, total.....	430,169	75,290	505,459
Angler load, average.....	24.7	22.9	24.5
Percent capacity utilized.....	47.6	49.8	47.9

At Santa Barbara, three partyboats were active. They had a combined capacity of 139 anglers, or an average of 46.3. Five boats at Malibu Beach had an average capacity of 68.8 anglers. In contrast, Wilmington supported a relatively high number of small craft, primarily charter boats. The San Diego-Mission Bay partyboat complex was able to accommodate 1,566 anglers at any given time, the largest potential of any port along the California coast (Table 11).

Partyboats operating out of metropolitan areas carry far more fishermen than do boats from outlying ports. Experience clearly indicates that fishing success near population centers soon declines, whereas there may be no noticeable effect upon the more distant grounds where there is less fishing effort. To reach better (i.e., distant) areas, vessels must increase speed and range. Since World War II, more and more emphasis has been placed on speed, particularly for all-day boats. Vessel operational expenses go up as speed increases, and the partyboat angler bears the cost, in the long run.

During the most recent 10-year period, partyboat operators have put much more emphasis upon half-day boatfishing. Generally, half-day boats travel at relatively slow speed but are quite comfortable. Fares are sharply reduced, and fishing time is abbreviated, but the half-day operation fits the desires of a very large group of fishermen. Fishing is conducted locally, and rigid time schedules are maintained. Fishing success has held up reasonably well, in spite of mounting pressure. Of course, the size and the species of fish taken and available to the half-day angler generally differ somewhat from those taken on all-day boats.

Fishing time varied sharply by port and by vessel class in 1963, e.g., Santa Monica and Redondo Beach boats engaged primarily in half-day fishing, and trips averaged 3.5 and 3.1 hours, respectively (Table 13). At San Pedro, most boats engaged in all-day fishing, although half-day trips were regularly scheduled. San Pedro boats averaged 6.7 hours of fishing.

Traditionally, southern California partyboat anglers have had a firmly established species preference. In the approximate order of

TABLE 13
Fish Catch, Anglers, and Angler Hours Reported, by Port
Southern California Marine Partyboats, 1963

Port	Number of fish	Number of anglers	Number of angler-hours	Hours fished per trip, average
Santa Barbara.....	109,060	9,369	41,233.9	4.4
Port Hueneme.....	151,311	15,303	79,730.1	5.2
Malibu Beach.....	197,775	30,817	136,964.5	4.4
Santa Monica.....	176,575	29,654	105,137.0	3.5
Redondo Beach.....	209,810	34,257	107,675.0	3.1
San Pedro.....	317,712	45,610	306,567.8	6.7
Wilmington.....	14,547	2,160	12,573.7	5.8
Long Beach.....	744,621	108,416	528,300.6	4.9
Seal and Huntington Beach.....	216,266	28,828	102,388.6	3.6
Newport Beach-Balboa.....	342,233	49,728	257,554.2	5.2
San Clemente.....	253,738	28,867	126,553.1	4.4
Oceanside.....	272,958	29,344	164,008.5	5.6
San Diego-Mission Bay.....	480,030	94,001	511,377.2	5.4

angler desirability these are: albacore, yellowtail, white seabass, bluefin tuna, barracuda, bonito, bass, and California halibut. The rank of a species can vary greatly, depending upon its availability. For instance, the bluefin tuna has a popularity potential that would rank it above yellowtail if it was available (on the fishing grounds) as frequently as the yellowtail. The same holds true for other species. Rockfish, sheephead, sculpin, jack and Pacific mackerels, lingcod, giant sea bass, cabezon, sablefish, white croaker and a few more also are important in the southern California partyboat catch.

Experienced fishermen know angling success can vary tremendously from one day to the next in a given area. They learn that certain species of fish dominate in a particular port area. San Diego, for example, is famous for yellowtail and angler success statistics, as shown by partyboat logs, support this reputation. A fisherman would have to be in very poor luck indeed to avoid taking kelp bass at Santa Barbara, Port Hueneme, San Clemente, or Oceanside. Bonito, barracuda, and albacore are less predictable (Table 14).

Two factors, high angler success potential, and the presence of a desired species greatly influence the angler's choice of fishing grounds. Some fishermen would rather fish for yellowtail, and catch little or nothing, than to take home a sack of rockfish. Those who prefer rockfish to yellowtail are in a minority.

Commercial Fishing. Thirty-seven of 197 active southern California area partyboats engaged in commercial fishing. In addition, 13 registered but non-reporting partyboats fished commercially (Table 11). Altogether these 50 boats landed 885,671 pounds of fish commercially. Commercial deliveries during the height of the sportfishing season, May through September, may be an indication that some of the fish taken under authority of a sportfishing license were sold, an illegal practice during these years. If sport caught fish were sold, it apparently happened infrequently according to commercial landing records. Heavy deliveries of albacore and of skipjack were made September through November, too late in the year for much partyboat participa-

TABLE 14
Catch Per Angler, Seven Principal Species, by Port
Southern California Marine Partyboats, 1963

Port	Barracuda		Kelp-sand bass		Yellowtail		Bonito	
	Catch	Catch per angler	Catch	Catch per angler	Catch	Catch per angler	Catch	Catch per angler
Santa Barbara.....	1,013	.1	50,869	5.4	145	----	12,571	1.3
Port Hueneme.....	5,730	.4	67,848	4.4	1,228	.1	17,484	1.1
Malibu.....	2,175	.1	67,979	2.2	14	----	34,708	1.1
Santa Monica.....	6,260	.2	81,253	2.7	23	----	47,070	1.6
Redondo Beach.....	18,333	.5	59,458	1.7	1,403	----	82,074	2.4
San Pedro.....	33,009	.7	137,873	3.0	4,327	.1	76,299	1.7
Wilmington.....	2,708	1.3	6,029	2.8	88	----	2,821	1.3
Long Beach (Avalon, Terminal Island).....	114,349	1.1	255,688	2.4	4,937	----	139,558	1.3
Seal Beach.....	54,042	2.2	58,510	2.4	16	----	28,488	1.2
Huntington Beach.....	10,502	2.3	9,786	2.2	3	----	12,412	2.7
Newport Beach-Balboa.....	46,809	.9	117,968	2.4	1,431	----	92,263	1.9
San Clemente.....	55,881	1.9	124,123	4.3	349	----	48,949	1.7
Oceanside.....	66,231	2.3	107,378	3.7	1,549	----	53,786	1.8
San Diego, Mission Bay.....	66,640	.7	74,577	.8	30,192	.3	124,553	1.3

Port	California halibut		Rockfish		Albacore		Catch per angler overall
	Catch	Catch per angler	Catch	Catch per angler	Catch	Catch per angler	
Santa Barbara.....	882	.1	40,591	4.3	----	----	11.6
Port Hueneme.....	1,116	.1	52,605	3.4	2	----	9.9
Malibu.....	17,508	.6	57,987	1.9	----	----	6.4
Santa Monica.....	18,275	.6	14,441	.5	----	----	6.0
Redondo Beach.....	1,520	----	31,207	.9	607	----	6.1
San Pedro.....	4,981	.1	4,918	.1	14,700	.3	7.0
Wilmington.....	464	.2	1,135	.5	259	.1	6.7
Long Beach (Avalon, Terminal Is.).....	21,531	.2	74,868	.7	30,743	.3	6.9
Seal Beach.....	11,327	.5	180	----	9	----	7.2
Huntington Beach.....	3,333	.7	15	----	----	----	8.9
Newport Beach-Balboa.....	11,770	.2	23,270	.5	17,797	.4	6.9
San Clemente.....	15,477	.5	760	----	855	----	8.8
Oceanside.....	13,230	.5	3,918	.1	2,541	.1	9.3
San Diego, Mission Bay.....	2,244	----	53,663	.6	82,637	.9	5.1

tion. As a consequence, probably very little of the 804,656 pounds of albacore and skipjack landed by registered partyboats originated from boats fishing under the authority of sportfishing licenses. Landings of skipjack and albacore in combination would indicate that fishing had been conducted beyond the daily operational range of southern California partyboats. A very high percentage of the yellowtail and white seabass landed commercially were taken in January and February when partyboat sportfishing is at its lowest level of the year.

Three of the 13 partyboats that failed to report sportfishing activities landed impressive amounts of commercial fish and abalone. One of these boats is known to have fished as a partyboat, but no logs were submitted. In May 1963, the skipper of the second vessel notified the Department of Fish and Game that no partyboat trips were contemplated; this vessel landed abalone. The skipper of the third vessel

landed commercial catches in January and February, but discontinued fishing to fulfill a collecting contract for a marine aquarium. During 1964, four of the 13 vessels registered and reported partyboat fishing during the year. A fifth purchased a license, but again failed to report sportfishing, if it occurred.

Some species of fish taken from partyboats have high market value, others sell at a low price. When species of high value begin to appear in great numbers, some skippers will abandon sport for commercial fishing. In so doing, an undetermined amount of prestige and good will between sportfishermen and the boat operator may be lost. Many sportsmen view commercial fishing as a threat to continued sportfishing. Also, sportsmen often return to the boat they are familiar with. If this boat is not available, because it is fishing commercially, there is little likelihood that the angler will ever return. He will probably form a new attachment. Other skippers may choose to sell the marketable fish remaining on the boat after the sportfishing day is over. In a reasonable period of time, boat personnel can augment their income considerably, although illegally. The sportsman is seldom upset by this practice, if he knows about it. In 1963, albacore (12-24 cents/pound), white seabass (40 cents), and perhaps barracuda (10-24 cents) brought high prices on the market. Rockfish, ocean whitefish, sheephead, and bonito were low priced (4-12 cents per pound). It is doubtful that many skippers would have considered selling the low priced fish, although some may have sold albacore and barracuda. White seabass are too much in demand to be left on a boat. The crew, of course, could catch and sell white seabass, but their opportunities would have been rare.

Boat Age and Length. Forty-two percent of the 259 reporting vessels were from 35 to 45 feet long, and all but two were constructed after 1940 (Figure 11). On the other hand, many of the 55- to 65-foot vessels were built prior to 1940.

In 1961, the first of a number of vessels in the 85-foot class was launched into the sportfishing industry. Some of these large vessels operating in 1963 were war-surplus items, and some had been constructed specifically for sportfishing. Between 1963 and 1967, several more 80- to 85-foot partyboats joined the fleet.

Nine out of every 10 vessels in the southern California fleet were launched after 1940, and 25% of these were built in the 4-year period 1944-1947 (Figure 11). Assuming that partyboats enter the fishery during their first year after launching, approximately 10 new boats have been added to the southern California fleet annually.

Angler Capacity and Boat Length. Of the 197 reporting partyboats in 1963, 28% could carry from 16 to 25 anglers, 20% were capable of handling 56 or more anglers and 10% were restricted to 6 anglers or less (Figure 12). By comparison, 28% of the bays-delta fleet could carry 16-25 anglers, but there was none of the big 56+ passenger boats. The bays-delta fleet also had twice the percentage of small boats, six anglers or less.

Not all of the one- to six-passenger boats were small craft. Boats of this group ranged from 17 to 53 feet in length and most were 24 to 42 feet long. Boats capable of carrying 16 to 25 anglers ranged from 32 to 54 feet long, but most were from 37 to 44 feet (Figure 13).

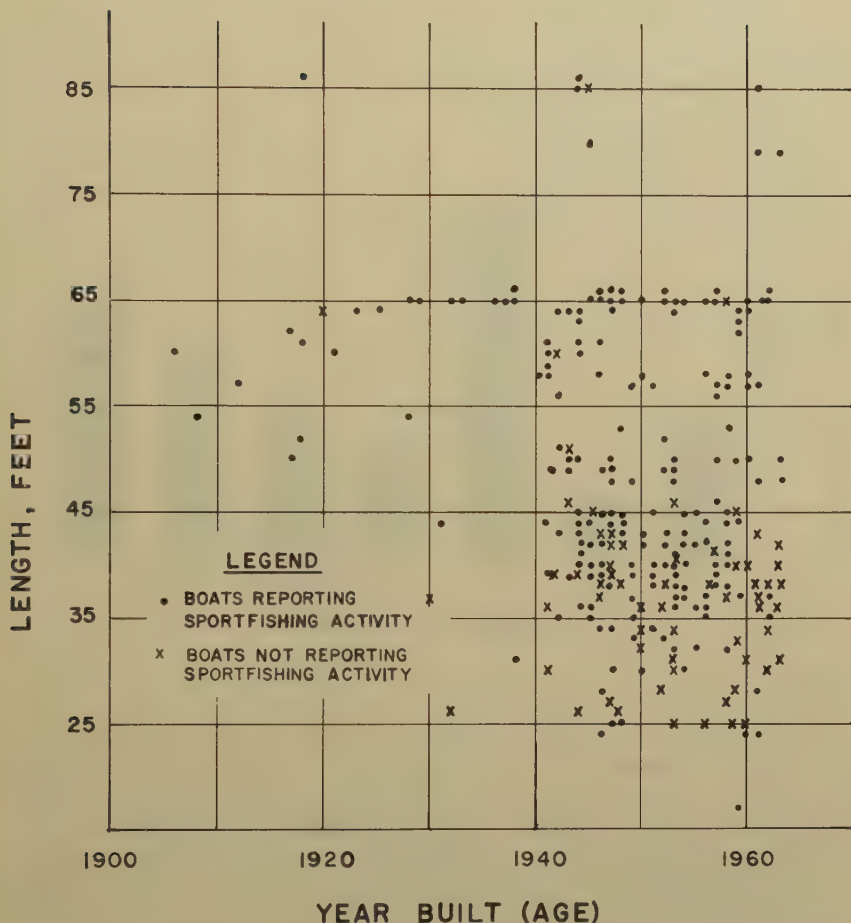


FIGURE 11. Year built (age) and length of 259 registered partyboats, southern California fleet, 1963.

None of the vessels rated for 56 anglers and up was less than 57 feet long. One 49-foot vessel was said to have a designated capacity of 49 anglers, but 1:1 ratios (one angler to 1 foot of vessel length) are not generally encountered until boats are 57 feet and longer. Partyboats built since 1949 have not affected the ratio of anglers to length (Figure 13).

Anglers Per Trip. In 1963, the number of anglers carried per trip increased as the number of trips per boat increased (Figure 14). A line fitted to the data, number of anglers carried versus the number of boat trips logged, showed a curvilinear relationship, the formula was: $Y = 11.64 + .099X - .00013X^2$.

Partyboats logging 10 trips during 1963 averaged 12.6 anglers per trip, whereas those making 100 trips averaged 20.2 anglers. Average peak loads, about 30 anglers, were carried on partyboats that logged 340 to 420 trips for the year. Angler loads decreased rapidly as trip

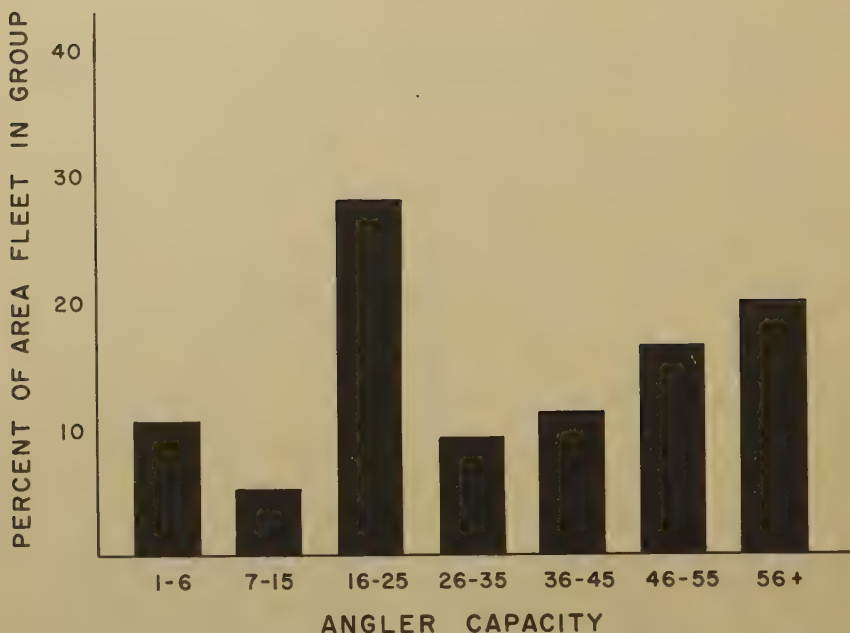


FIGURE 12. Percent of southern California fleet by angler capacity, 197 reporting partyboats, 1963.

counts exceeded 420. Data show that in the southern California fleet the larger boats not only carried more anglers than the smaller boats, but made more trips. From an economics standpoint, large boats require a greater investment, and the operator is forced to carry more passengers, and fish more often in order to protect his investment.

One large all-day boat logged 122 trips, with an average of 45 anglers per trip. One half-day boat logged 423 trips and averaged more than 36 anglers per trip. If the data shown in Figure 14 were replotted, eliminating multiple-trip boats, the fitted line would have a greater slope, and the average anglers per trip for the remaining boats would be higher, possibly by two anglers for 100-trip boats.

Southern California partyboats were active in all months in 1963. In January, 38 boats reported sportfishing, and there were 37 in December. June, July, and August were the big months and always have been (Figure 15). In July, 170 of the year's 197 reporting boats logged sportfishing trips.

Of 20,673 partyboat trips reported in 1963, over 70% were undertaken during the 5-month period May through September (Figure 16). During the slowest months, January and December, more than 500 trips were logged, ranging to more than 3,500 trips during each peak month, July and August.

Although the least number of boats was in operation January, February, and December, the average number of trips per boat month was equal to or higher than for other months of the year (Table 15).

In April, 101 boats averaged 12.7 trips each. This is the month partyboat skippers and fishermen begin anticipating the new fishing

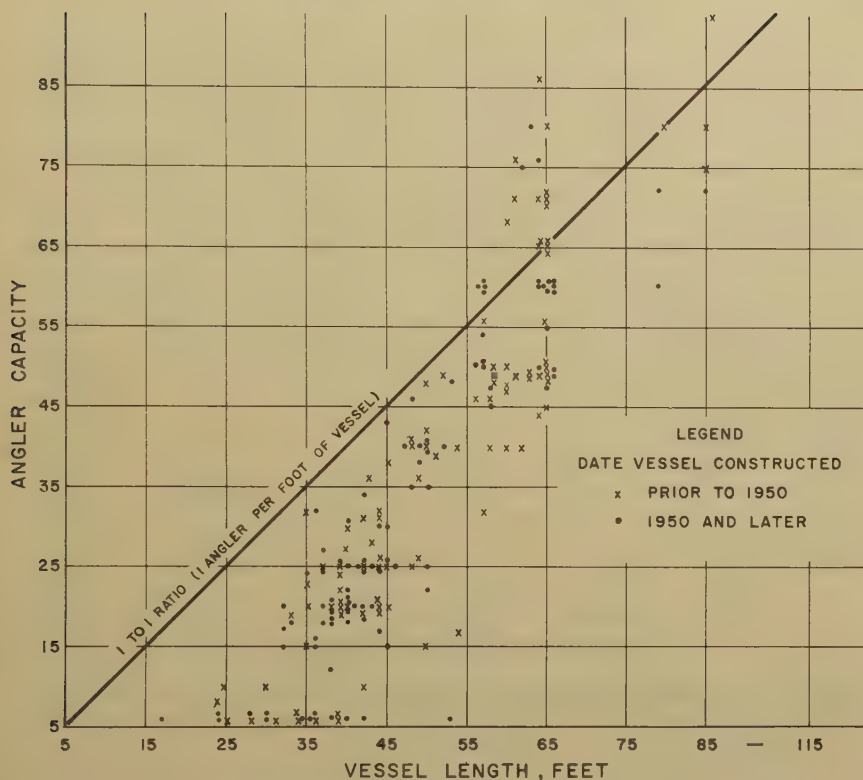


FIGURE 13. The relationship between boat length and angler capacity, 197 partyboats reporting sportfishing, southern California fleet, 1963.

season, but more boats become available than anglers to keep them busy. In September and October, when fishing is often highly rewarding, there are again too few fishermen to keep the available boats fully active.

Of the 20,673 trips reported by the southern California fleet in 1963, 11,962 were all-day trips. An all-day trip usually ends after a full day of fishing. At times, when fishing is unusually successful, the trip is terminated earlier than normal. If fishing has been poor, the day may be extended in hopes of encountering that last minute school of fish. Taking a full legal limit of fish, "limiting out" doesn't occur very often to either the boat or the angler. The remaining 8,711 trips were either single half-day trips (967) or multiple trips (7,744). Multiple and single half-day trips include:

- 1) Two half-day trips: boats sail and return twice, as scheduled;
- 2) Single half-day trips: boats are scheduled normally, but because of mechanical failure, rough weather, or lack of a passenger load, one trip is cancelled. Morning trips are more likely to take place than afternoon trips.
- 3) Two half-day trips and an evening trip ("sundowner"). Many anglers cannot fish during the day, but find the evening trip,

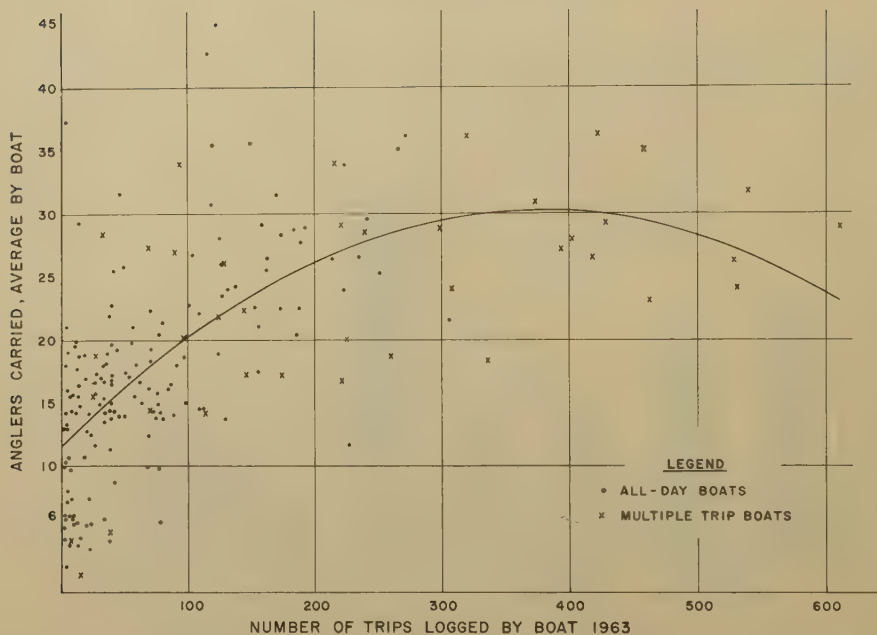


FIGURE 14. The relationship between trip frequency and the average load of anglers. Each plot represents the angler load average trip frequency record of a single southern California partyboat in 1963.

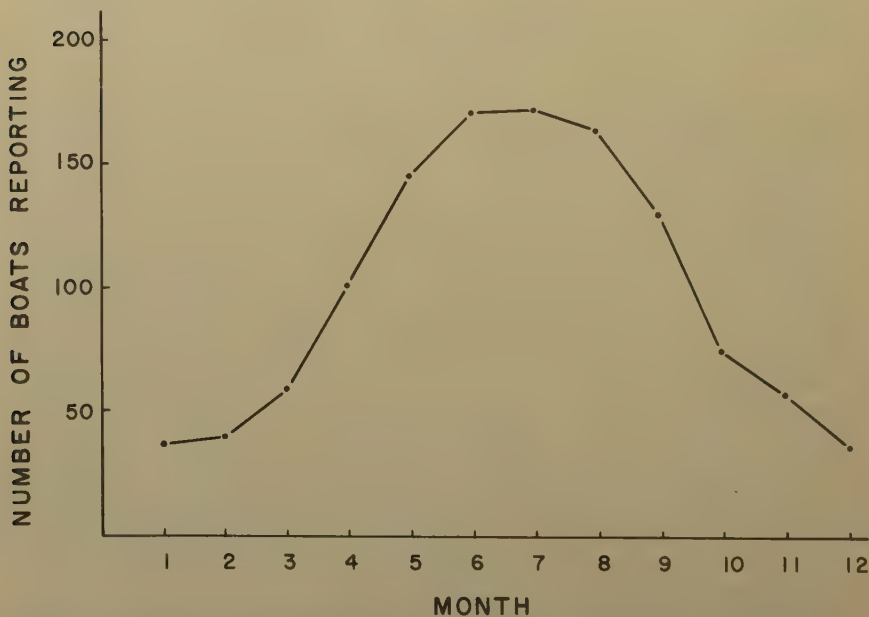


FIGURE 15. Number of partyboats reporting sportfishing by month, southern California fleet, 1963.

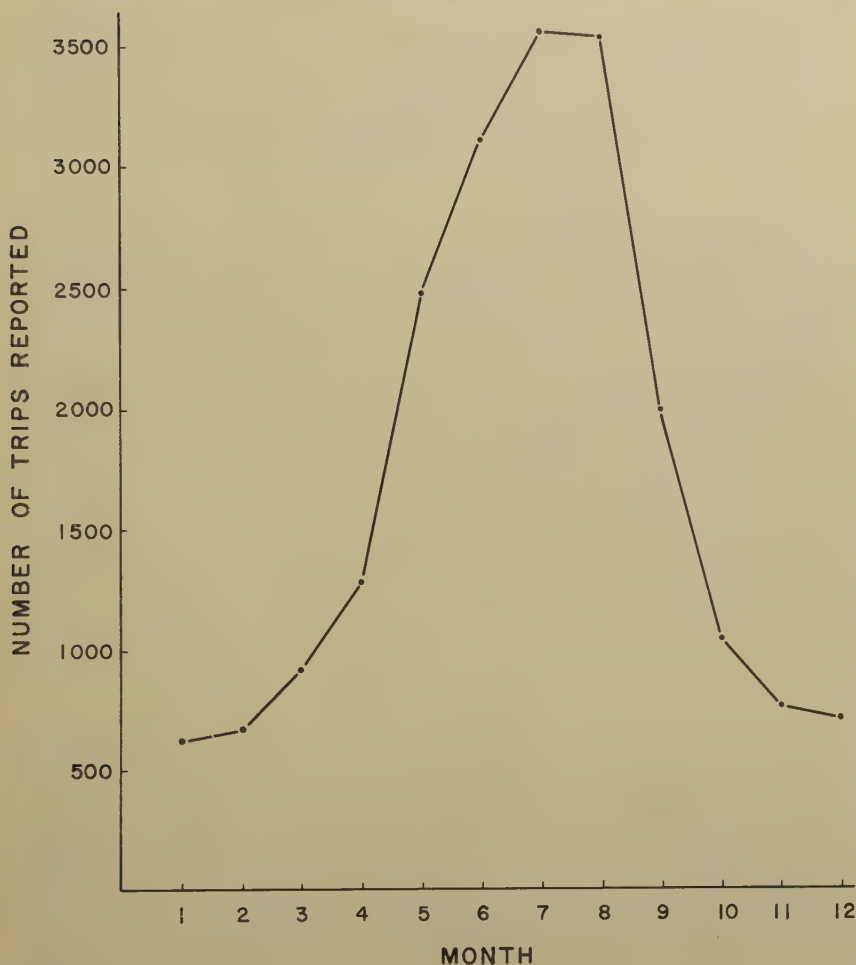


FIGURE 16. Number of partyboat trips reported by month, southern California fleet, 1963.

TABLE 15
 Number of Partyboats Reporting and Average Number of Trips Per Month
 Southern California Marine Partyboats, 1963

Month	Number boats reporting	Number trips average	Month	Number boats reporting	Number trips average
January.....	38	16.5	July.....	171	20.8
February.....	41	16.4	August.....	162	21.9
March.....	60	15.4	September.....	128	15.6
April.....	101	12.7	October.....	74	14.1
May.....	144	16.9	November.....	57	13.3
June.....	169	18.4	December.....	37	19.1

sailing about 5:00 PM, ideal for relaxed and rewarding fishing. Frequently, the sundown trips are manned by relief crews.

- 4) One all-day, and one half-day trip: some partyboats sail very early in the morning to distant fishing grounds. Upon return, about noon, a shorter trip with different fishermen is taken to local grounds.

Partyboat Catch Statewide, 1947-1967

During the 1947-1967 period, many species of fish were taken on partyboats. Consecutive catch records have been maintained for 28 species or species groups (Appendix 2), and for these angling effort is expressed in two ways: angler days, and angler hours. Neither expression has been continuous over the 21-year period. The statistic "number boats statewide" refers only to the number of boats reporting catches of fish. Some boats reported "no fishing", but these are not included in the number boats statistic. Angler (head) counts were started in 1960 and continue through 1967.

Partyboat catch and effort data have been summarized by port and port groups. The species listed for each port were selected somewhat arbitrarily, but include the popular and numerically important fishes of the area (Appendixes 3 through 31). In some instances, a species of fish may be included in a port listing but it does not appear among the 28 species listed in Appendix 2. This occurs where fishes are of minor interest locally, but relatively unknown elsewhere.

SPECIES ACCOUNTS

A statewide list of the 20 most important species in the partyboat fishery would be too arbitrary to have much meaning. If the list was based upon magnitude of catch, rockfish would be far and away the most important. Rockfish, however, seldom are considered the most important by anglers and landing operators. Along the central and northern California coast, salmon rate highest, rockfish second. In the bays-delta area, striped bass and salmon share the honors as most important, rockfish are probably third. In the central California area, rockfish may rate highest, followed by lingcod and cabezon, but salmon, and albacore when available, are extremely popular. It would be difficult to find as many as 20 species or species groups that are commonly taken from the partyboats of all three areas.

In southern California's warm seas, nature has provided a great many species of fish, including those that occur in northern and central California. Here, a list of 20 species can be drafted. Perhaps the most significant approach to the question, "what are the 20 most important species?" is from the standpoint of the people earning their living in the partyboat fishing business. Their decisions would include a consideration of the magnitude of catch of each species, angler preference, seasonal availability and other factors.

In 1968, the following was asked of 11 southern California partyboat operators: "List in order the 20 most important species of fish to your partyboat business." From their answers, a list reflecting majority opinion was established. Each operator had his own opinion and may or may not have agreed with the others (Table 16). It should be

realized that the composition and rank order of the list might change with time.

TABLE 16
Twenty Most Important Gamefish Species Ratings by Eleven Southern California
Partyboat Landing Operators, 1968

Species rank	Rating by landing									
Barracuda.....	1	1	1	1	1	3	3	3	4	5
Kelp, sand bass.....	1	1	1	2	2	2	2	3	4	5
Yellowtail.....	2	2	3	4	4	4	4	7	8	9
Bonito.....	3	4	4	4	5	5	5	6	7	7
California halibut.....	2	3	3	3	4	4	6	6	8	9
Rockfish.....	2	2	5	5	6	8	8	9	9	9
Albacore.....	1	1	1	2	6	7	7	7	14	--
White seabass.....	2	3	5	5	5	6	6	7	7	--
Bluefin tuna.....	3	6	7	8	8	9	10	12	--	--
Sculpin.....	6	6	9	10	10	11	11	11	12	18
Pacific mackerel.....	8	8	10	11	11	17	--	--	--	--
Giant sea bass.....	9	10	12	13	13	14	14	15	--	--
Sheephead.....	8	10	10	14	14	15	17	17	--	--
Lingcod.....	6	11	12	13	13	13	15	16	18	--
Jack mackerel.....	10	11	12	12	12	14	16	--	--	--
Salmon.....	10	10	16	17	17	18	19	20	--	--
Cabezon.....	11	12	15	16	16	18	19	--	--	--
Miscellaneous flatfish.....	10	13	14	15	15	20	--	--	--	--
Sablefish.....	9	13	14	18	19	19	20	--	--	--
White croaker.....	13	19	19	20	20	--	--	--	--	--

1. Barracuda

Total partyboat catch, 1947-1967: 9,617,910 fish.

Minimum and maximum catches: 87,603 (1956); 1,195,585 (1959).

Mean catch: 457,996.

Southern California landing operators, as a group, believe the barracuda is the most important species to their partyboat business. Individual operators ranked barracuda from first to fifth (Table 16).

Statewide, in one year (1959), barracuda led all other species in total partyboat catch. Barracuda ranked third in 10 of the 21 years, fourth in 7, second in 2, and fifth in 1 year.

During the 1961-1967 period, partyboat anglers alone caught four times as many barracuda as were landed commercially from Californian and Mexican waters combined (Table 17).

Barracuda commercial and sportfishing regulations have been in force for many years. Some people object to the sportfishing size limit which states "not more than 2 fish [barracuda] less than 28 inches (total length) . . . may be possessed. . . ." The objectors insist that barracuda lose protective mucous and die a short time after being handled. In 1958, several dozen barracuda were tagged and held in tanks aboard ship for several weeks. They developed white (fungus?) marks along the back and sides, presumably from handling, but recovered fully after resuming feeding. One or two fish died over the entire holding period (Leo Pinkas, California Department of Fish and Game, pers. comm.). It is unlawful for commercial fishermen to possess any barracuda on any boat carrying or using any purse seine or

TABLE 17
Origin, Pounds, and Number of Fish
Commercial Barracuda Landings, 1961-1967

Year	California pounds	Mexico pounds	Total pounds	Number fish ¹
1961-----	478,362	231,017	709,379	177,345
1962-----	521,769	224,707	746,476	186,619
1963-----	347,354	31,360	378,714	94,679
1964-----	251,025	83,115	334,140	83,535
1965-----	273,003	89,055	362,058	90,514
1966-----	233,319	85,797	319,116	79,779
1967-----	281,224	31,960	313,184	78,296

¹ Computed value, conversion factor four pounds per fish.

round haul net. Gill nets, with a minimum mesh of 3½ inches, may be used to take barracuda.

Theoretically, size restrictions protect young, immature fish, permitting growth to take place until an economically appropriate size is reached. Gear restrictions are designed to bring fishing effort in line with fish abundance. The population is not large enough and barracuda are too vulnerable to nets to withstand purse and round haul seining. Purse seining, however, does take place to a minor extent in Baja California. Sport and commercial fishing activities in Mexico can and may exert heavy pressure on the barracuda population, which could affect angling off California.

Barracuda prefer to range over the continental shelf, close to shore, including near-shore islands. They are migratory, and have been taken off Alaska and from Magdalena Bay, Baja California.

When lower than average water temperatures prevail, barracuda withdraw from the northern end of their range. They can, however, be found from Santa Monica Bay south under all conditions. If unfavorable temperatures are extended in time, angler success will probably decrease steadily. This situation was experienced from 1948 through 1956 (Appendix 2).

All 3-year-old barracuda are sexually mature, but only 75 percent of the 2-year-old fish are capable of reproduction. The California spawning season may extend from April through September, but principal spawning is accomplished during May, June, and July. A single fish will spawn more than once each season, and the larger fish produce the most eggs.

On the average, a 1-year-old barracuda is 13.8 inches long and weighs one-third pound. A 28-inch barracuda weighs 3 pounds, and may be 4 or 5 years old. A very large fish, 10 or more pounds, may be 11 or more years old. The life span is not great, perhaps 12 years, maximum.

2. Kelp Bass and Sand Bass

Total partyboat catch, 1947-1967: 16,011,300 fish.
 Minimum and maximum catches: 428,426 (1959); 1,278,939 (1966).
 Mean catch: 762,443.

Southern California partyboat landing operators rated these two species second most important in the southern California area. Individual operators ranked bass from first to eighth.

Statewide, bass catches were first in 6 years, second in 10, third in 3, fourth in 1, and fifth 1. The ubiquitous rockfish is the only group that has provided more fish to partyboat anglers.

The kelp bass, also called calico and bull bass, is the mainstay of the bass fishery.

At times in the last 20 years, particularly 1950 to 1957, sand bass have been scarce in southern California.

Tagging studies show kelp bass are largely non-migratory. Sand bass tend to move freely for short distances, but migrations greater than 40 miles have not been detected. There is good reason to believe an extended cold water phase in southern California would drive sand bass south, out of range of all but a few partyboats.

Commercial fishing offers no competition to the bass angler. Bass taken in Mexican waters may be imported (under stringent regulations), but California caught fish cannot be legally marketed. Since 1962, no bass have been brought in from Mexico (Table 18).

TABLE 18
Origin, Pounds, and Number of Fish
Commercial Sand and Kelp Bass Landings, 1961-1967

Year	California pounds	Mexico pounds	Total pounds	Number fish ¹
1961-----	--	2,584	2,584	2,584
1962-----	--	1,470	1,470	1,470
1963-----	--	--	--	--
1964-----	--	--	--	--
1965-----	--	--	--	--
1966-----	--	--	--	--
1967-----	--	--	--	--

¹ Computed value, conversion factor one pound per fish.

Sportfishermen are restricted to a 12-inch minimum size, and a 10-fish bag limit. The 12-inch size limit has been in effect since 1959, the bag limit much longer. The bass fishery has been thriving since 1962 (Appendix 2). A few observers say that stunting is taking place where sub-legal bass are heavily concentrated. Statistics indicate that the catch of legal bass in the crowded areas is normal, but perhaps the catch should be noticeably higher than normal, considering the heavy population of sub-legal bass present from which to draw.

The range of kelp and sand bass extends from about Monterey Bay, California, to central Baja California. In 1965 a 13 $\frac{3}{4}$ -inch kelp bass was taken off the mouth of the Columbia river, Oregon (Hosie & Bond, 1968). Kelp bass are strongly attracted to cobble and (solid) rock substrate, but may avoid water deeper than 150 feet. Sand bass are most often taken over light cobble, or sandy-mud bottoms. They are common at 60 feet, and have been observed at 120 feet. In January 1969, the skipper of a partyboat from Malibu Beach reported taking 12, 4- to 8-pound sand bass from 300 feet. From the same boat, the catch of a 6-pound sand bass at 350 feet was verified.

Bass growth rates are astonishingly slow. One-year-old fish average 4 inches total length. Even at this early stage, bass show the daring and aggressiveness that characterizes older and much larger fish. A 12-inch kelp bass may be 4 to 6 years old. Very large kelp (bull) bass, maximum 28 inches, range from 15 to at least 30 years of age. Sand bass growth rates have not been fully established, although recoveries of tagged sand bass indicate that the rates are similar or perhaps slightly faster than for kelp bass. First maturity of kelp bass is reached at the end of the second year, at a length of about 7 inches. At a slightly greater size, when more fish have reached maturity, kelp bass begin to appear in the fishery with regularity. Quast (1968) theorized two spawning peaks for larger females. Ripe fish are noted from mid-April through October, with a peak from May through September.

The kelp bass utilizes a broad spectrum of foods, a generalist in the fullest sense. As bass grow larger, feeding shifts to the larger prey, including anchovies, squid and octopus.

3. California Yellowtail

Total partyboat catch, 1947-1967: 1,619,194 fish.

Minimum and maximum catches: 6,948 (1947); 457,350 (1959)

Mean catch: 77,104

Southern California partyboat landing operators rated the California yellowtail the third most important gamefish. Rankings ranged from second to ninth, one operator did not rate the species. Statewide, yellowtail catch totals have ranged from fourth to seventeenth, but averaged tenth.

Round haul nets may not be used to take yellowtail in California waters, but are permitted south of the United States-Mexican boundary. Entangling nets and hook and line are legal commercial gear in California. During the period 1961 through 1967, commercial landings were less than 40% of the partyboat catch (Table 19). In 1966, 245,207 pounds of yellowtail were sold at market; for these, the commercial fishermen received \$26,605, less than 11 cents per pound. Anglers may not possess more than 10 fish, 2 of which may be less than 28 inches total length.

TABLE 19
Origin, Pounds, and Number of Fish
Commercial Yellowtail Landings, 1961-1967

Year	California pounds	Mexico pounds	Total pounds	Number fish ¹
1961-----	80,689	300,080	380,769	31,730
1962-----	37,066	151,355	188,421	15,702
1963-----	25,443	44,283	69,726	5,811
1964-----	25,878	84,221	110,099	9,175
1965-----	12,522	115,283	127,805	10,650
1966-----	35,880	209,327	245,207	20,434
1967-----	13,179	137,489	150,668	12,556

¹ Computed value, conversion factor 12 pounds per fish.

The California yellowtail has been reported from Monterey Bay south to Cape San Lucas, Baja California, and throughout much of the Gulf of California. Tagging studies demonstrate that a large pro-

portion of California fish come from the Cedros Island area of Baja California. Normally, these fish do not spawn off California, but in 1959, following two warm water years, an abundance of small yellowtail showed that there had been considerable spawning success locally. Some 2-year yellowtail spawn, and all 3-year fish are mature. Spawning takes place in summer months. Most of the fish taken by partyboat fishermen weigh between 10 and 20 pounds, and are 3 to 7 years old.

A 35-pound yellowtail was determined to be 12 years old. Forty-pound yellowtail are not uncommon, but extremely difficult to land. This species attains a large size, an 80-pound fish taken at Guadalupe Island a few years ago is the present record.

Yellowtail are first-class gamefish, and like most gamefish, vigorous carnivores. The stomachs of 172 yellowtail contained: round herring, sardines, thread herring, northern anchovies, California flyingfish, a red serranid, jacksmelt, jack mackerel, Pacific mackerel, halfmoon, rockfish, red crabs, squid, and miscellaneous animal and vegetable matter.

4. Bonito

Total partyboat catch, 1947-1967: 8,421,873 fish.

Minimum and maximum catches: 2,359 (1950); 1,298,804 (1964).

Mean catch: 401,042

Southern California landing operators rated bonito fourth most important to the southern partyboat industry. Individual ratings extended from third to seventh.

Statewide, partyboat catch totals of bonito ranked from first to eighteenth. In 1947, 36,496 fish were logged on southern partyboats, placing bonito seventh in total catch. For the next six (cold water) years, bonito were never higher than fourteenth. Starting in 1957, and continuing through 1967, bonito have been among the top four in total catch.

Commercial fishing is carried on with hook and line, trolling gear, small nets, and purse seines. The bulk of the catch is canned and small amounts go to the fresh fish markets. Landings have been erratic. Approximately 533,000 bonito were landed commercially in 1962 and over 5 million in 1967 (Table 20). The commercial catch in California waters in 1966 and 1967 amply demonstrated that heavy fishing pres-

TABLE 20
Origin, Pounds, and Number of Fish
Commercial Bonito Landings, 1961-1967

Year	California pounds	Mexico pounds	Total pounds	Number fish ¹
1961-----	8,439,400	73,572	8,512,972	2,128,243
1962-----	2,071,998	62,904	2,134,902	533,725
1963-----	4,013,505	9,017	4,022,522	1,005,630
1964-----	2,606,411	5,858	2,612,269	653,067
1965-----	5,632,399	5,941	5,638,340	1,409,585
1966-----	18,308,175	840,319	19,148,494	4,787,123
1967-----	17,841,537	3,377,894	21,219,431	5,304,857

¹ Computed value, conversion factor four pounds per fish.

sure can be placed upon this species when there is sufficient demand. Partyboat catches during the same 2 years (1966 and 1967) were well below the preceding 7 years. These data suggest that strong competition exists between the two industries for the available bonito. Sport fishermen may not possess more than 10 bonito.

The bonito is a pelagic schooling fish, inhabiting the temperate coastal shelf. Its geographic range extends from Vancouver Island to Cape San Lucas. The economic range is Point Conception to Magdalena Bay, Baja California.

Spawning occurs in southern California, young fish 6 to 10 inches long appear in early summer. Two summers later, many of these bonito weigh 6 or 7 pounds. Most of the fish caught by California anglers weigh between 3 and 12 pounds and are probably 1 to 8 years old. A 25-pound bonito is about maximum size, but it is claimed larger fish have been taken.

Young bonito feed on crustaceans and planktonic foods, the larger fish prefer sardines, anchovies, and occasionally squid.

5. California Halibut

Total partyboat catch, 1947-1967: 1,548,648 fish.

Minimum and maximum catches: 10,795 (1957); 143,462 (1948).

Mean catch: 73,745.

Southern California landing operators rated California halibut, a bottomfish, fifth in overall importance to the southern partyboat fishing industry. Barracuda, kelp bass, yellowtail and bonito are fished at the surface. Individual operators ranked California halibut from second to eleventh in importance. Statewide, partyboat catches of halibut have ranked fifth to fifteenth, and averaged eighth.

TABLE 21
Origin, Pounds, and Number of Fish
Commercial California Halibut Landings, 1961-1967

Year	California pounds	Mexico pounds	Total pounds	Number fish ¹
1961.....	545,472	109,082	654,554	81,819
1962.....	776,077	87,009	863,086	107,885
1963.....	855,092	265,277	1,120,369	140,046
1964.....	1,092,068	184,037	1,276,105	159,513
1965.....	1,128,348	115,370	1,243,718	155,464
1966.....	749,555	261,857	1,011,412	126,426
1967.....	824,919	13,139	838,058	104,757

¹ Computed value, conversion factor eight pounds per fish.

Although halibut are very popular among sportsmen, commercial fishermen also look upon the species with favor (Table 21). Commercial catches have always exceeded the partyboat catch, but by a smaller margin since World War II. During World War I nearly 5 million pounds of halibut were landed, but landings of the last 20 years have been far lower. Commercial fishing regulations prohibit trawl nets south of Santa Barbara County, except under permit for transport only. Where such gear is legal, trammel nets of at least 8-inch mesh may be used to take halibut. No California halibut less than 4 pounds

in the round may be sold. Unfortunately, $4\frac{1}{2}$ - or 5-inch mesh are used in the bag of trawl nets, much too small to allow halibut smaller than 4 pounds to escape. These small fish suffer high mortality and are wasted under present regulations. Ideally the mesh would have to be about $7\frac{1}{2}$ inches to allow undersized halibut escape (J. W. Schott, pers. commun.). Sportfishermen may not possess more than 5 halibut.

California halibut are found from southern Oregon to Magdalena Bay, Baja California. The economic range extends from San Francisco Bay to central Baja California.

The California halibut is the largest species of this genus (*Paralichthys*) known in American waters, Atlantic and Pacific. There is an unverified report of a 72-pounder, but the accepted record is $61\frac{1}{2}$ pounds.

Males may mature as early as the second year, when about 9 inches long. Females mature 1 or 2 years later. Females grow faster, a small number reach 22 inches and 4 pounds at 3 years of age. At 5 years, most of the females and half the males are larger than the 4-pound minimum size imposed on the commercial fishery. Spawning takes place in relatively shallow water. Ripe female halibut have been found early and late in the year, but the bulk of spawning runs from April through July, peaking in May.

Halibut feeding habits are not well documented, particularly for small fish. Six-inch halibut will take hooks baited with live anchovy. Adult fish take anchovy, queenfish, white croaker, octopus and other animal foods.

6. Rockfish

Total partyboat catch, 1947-1967: 22,766,628 fish.

Minimum and maximum catches: 193,652 (1947); 2,036,708 (1956).

Mean catch: 1,084,125.

The rockfishes (*Sebastes* spp.) form one of the most important fish families in the ocean waters of California. At present, in California waters, there are at least 55 species (J. E. Fitch, pers. commun.). Central and northern California partyboat catches consist primarily of blue, yellowtail, olive, and bocaccio rockfish. South of Point Conception the cow, olive, whitebelly, vermilion, and bocaccio rockfishes are among the most important.

Statewide, rockfishes rank first in total catch in the partyboat fishery. This group is of prime value to central California operators, and important to partyboat men elsewhere in the state. In 1947, 74% of the statewide rockfish catch was landed at central and northern California ports. In 1954, only 34% of the rockfish were landed in these areas, southern California operators accounted for 65%. Although southern California area catches have dominated the rockfish fishery for many years, southern operators rated the group about sixth in importance. Individual operators ranked rockfish from second to eleventh.

Commercial rockfish landings during the 1961-1967 period varied from 8- to 12-million pounds, almost all from California waters (Table 22). Bocaccio, chilipepper, canary, and vermilion rockfishes usually comprise the bulk of these landings.

TABLE 22
Origin, Pounds, Commercial Rockfish Landings, 1961-1967

Year	California pounds	Waters north of State pounds	Waters south of State pounds	Total pounds
1961-----	10,324,292	166,728	339,742	10,830,762
1962-----	9,181,683	211,411	441,299	9,834,393
1963-----	11,095,802	438,514	215,144	11,749,460
1964-----	7,850,373	193,489	74,050	8,117,912
1965-----	9,153,754	139,021	99,649	9,392,424
1966-----	9,874,348	100,548	88,696	10,063,592
1967-----	9,589,787	57,665	151,499	9,798,951

No size or bag limits apply to the commercial taking of rockfish. Otter trawling is prohibited within 3 miles of shore, and minor restrictions against setline fishing are in force at Santa Catalina Island and several of the larger bays along the California coast. Sportfishermen are limited to 20 rockfish per day.

Among rockfish, fertilization is internal and the embryos develop within the body of the female until hatching time. For a number of important market and sport rockfish, spawning occurs during the winter months. Other varieties spawn at other times of the year. Age at maturity varies according to species. A few shortbelly rockfish mature at 2 years, 50% are mature at 3 years. Fifty percent of the vermilion rockfish are mature at 6 years. Longevity also varies by species, the shortbelly lives 10 years, bocaccio 30 years, and yellowtail rockfish 24 years. Some species attain a maximum length of 10 to 12 inches, but most are larger, and a few reach 30 to 36 inches.

7. Albacore

Total partyboat catch, 1947-1967: 1,698,811 fish.
 Minimum and maximum catches: 39 (1959); 229,314 (1962).
 Mean catch: 80,896.

Southern California partyboat landing operators rated albacore seventh in overall importance, three rated them first. Other ratings ranged from second to fourteenth, two operators excluded albacore from the list. Statewide partyboat catch totals for albacore have been among the top eight, two-thirds of the time.

California's commercial albacore catch is many times greater than the partyboat catch. During the period 1961 through 1967, commercial landings exceeded the mean partyboat catch more than 25 to 1 (Table 23). Albacore are taken commercially with hook and line, and with purse seines. Hook and line fishing is far more productive, trollers account for about 75% of the hook and line catch, bait-jig fishing the remainder. Purse seining was unsuccessful until 1959 when light nylon nets and new power retrieval gear were combined to trap the speedy albacore. Purse seines now take a small fraction of the total catch.

Through 1966, sportsmen were limited to 10 fish in possession. There are no restrictions now (1969). Albacore weighing less than 7 pounds may not be bought or sold, but this regulation has only a minor impact on the fishery.

TABLE 23
Origin, Pounds, and Number of Fish
Commercial Albacore Landings, 1961-1967

Year	California pounds	Waters north of State pounds	Waters south of State pounds	Total pounds	Number fish ¹
1961-----	20,594,360	143,709	8,385,175	29,123,244	1,941,549
1962-----	32,046,366	--	4,576,009	36,622,375	2,441,491
1963-----	41,925,739	--	6,933,839	48,859,578	3,257,305
1964-----	33,867,847	--	8,683,164	42,551,011	2,836,734
1965-----	19,850,865	230,603	3,136,516	23,217,984	1,547,865
1966-----	16,141,399	672,854	1,374,959	18,189,212	1,212,614
1967-----	15,184,473	2,387,979	285,471	17,857,923	1,190,528

¹ Computed value, conversion factor 15 pounds per fish.

Albacore inhabit temperate waters. Their appearance along the California coast is seasonal, primarily June through September. The eastern Pacific distribution extends from about Magdalena Bay to Alaska, but may vary by year. The bulk of the albacore taken by partyboat fishermen is 2 to 3 years old, but 3- to 4-year fish are common. A fish 2 years old weighs 12.6 pounds; 3-year-olds, 20 pounds; 4-year-olds, 28 pounds. The largest albacore on record, 98 pounds, was taken on long-line gear from the central Pacific ocean near Hawaii (Harold Clemens, pers. commun.). Tagging studies indicate albacore are probably the fish world's greatest migrants. Several fish tagged on the California coast were recaptured off the coast of Japan, nearly 5,000 miles distant. Traveling "as a crow flies," these fish would have had to cover more than 17 miles per day.

Feeding may be at the surface or quite deep, but fish, squid, octopus, and small crustaceans are normal fare.

8. White Seabass

Total partyboat catch, 1947-1967: 529,941 fish.

Minimum and maximum catches: 3,385 (1967); 65,545 (1949).

Mean catch: 25,235.

Southern California partyboat landing operators rated white seabass eighth overall; individual ratings ranged from second to seventh, with two operators excluding white seabass from the list.

During the period 1951 through 1964, most commercial fishing for white seabass in California occurred in coastal waters from Morro Bay to the Mexican Border, but was centered in the San Pedro area including the offshore islands, particularly Santa Catalina and San Clemente. Fishing was conducted the year around, but most of the catch was landed from April through September (Thomas, 1968).

From 1961 through 1967, more white seabass were landed from Mexican than from California waters (Table 24).

Converting pounds to numbers shows that commercial fishermen landed 301,587 fish compared to 80,479 by partyboat fishermen. Market fish averaged 25 pounds, whereas white seabass taken on partyboats averaged about 15.

Set gill nets were and are the favored commercial gear, with fishermen preferring 6- to 7½-inch mesh, although 3½-inch mesh is legal.

TABLE 24
Origin, Pounds, and Number of Fish
Commercial White Seabass Landings, 1961-1967

Year	California pounds	Mexico pounds	Total pounds	Number fish ¹
1961-----	458,491	235,733	694,224	27,769
1962-----	208,867	365,541	574,408	22,976
1963-----	372,479	518,741	891,220	35,649
1964-----	550,817	840,264	1,391,081	55,643
1965-----	577,607	850,538	1,428,145	57,126
1966-----	674,545	663,305	1,337,850	53,514
1967-----	507,588	715,171	1,222,759	48,910

¹ Computed value, conversion factor 25 pounds per fish.

Purse seining for white seabass was practiced until it became illegal in 1940. Local all-year closures are in effect at Santa Catalina Island and Santa Monica Bay. Sport fishermen may not possess more than 10 white seabass, of which 2 may be less than 28 inches total length.

White seabass range over the continental shelf from Juneau, Alaska, to Magdalena Bay, Baja California, however, the principal center of abundance shifts within the Point Conception, California to Ballenas Bay, Baja California area.

The white seabass is the largest member of the family Sciaenidae in California. An 83-pound, 12-ounce fish holds the weight record; 40-pound individuals, about 20 years old, are taken frequently. Males start maturing at 20 inches total length, while females begin maturing at 24 inches, a year later than males.

Squid, sardines, and anchovies are commonly eaten. When available, pelagic red crabs are also favored.

9. Bluefin Tuna

Total partyboat catch, 1947-1967: 79,307 fish.

Minimum and maximum catches: 27 (1950); 34,187 (1956).

Mean catch: 3,777.

In spite of a relatively poor catch record, the bluefin tuna is a powerful drawing card, rating this species ninth in overall importance. One landing operator rated bluefin tuna third, other ratings ranged sixth to twelfth, with three ignoring it.

The bluefin is the famous "leaping tuna" that inspired Captain George Farnsworth to invent kite fishing in 1909. In 1899, 10 years prior to kite fishing, a 251-pound bluefin was landed at Santa Catalina Island, a sportfishing record that still stands. Today's angler occasionally catches a 25-pound fish. The largest eastern Pacific bluefin taken by any method was 6 feet, 2 $\frac{1}{4}$ inches long, and weighed 297 pounds. This fish was caught near Guadalupe Island, Baja California. In the Atlantic, bluefin tuna are reported to attain 1,800 pounds or more.

Bluefin tuna, never successfully taken by bait method, are exploited by the large tropical tuna seiners, and a fleet of smaller vessels which have converted to synthetic fiber seines and the Puretic power block (Bell, 1963). Since 1962, California commercial fishermen have en-

joyed far better success for bluefin in waters south of the State than in California (Table 25).

No California regulations affect the bluefin tuna fishery to an appreciable degree. A sportfishing bag limit of 10 fish was eliminated effective March 1965.

TABLE 25
Origin, Pounds, and Number of Fish
Commercial Bluefin Tuna Landings, 1961-1967

Year	California pounds	Waters south of State ¹ pounds	Total pounds	Number fish ²
1961-----	13,762,432	7,120,218	20,882,650	994,674
1962-----	17,039,651	14,160,300	31,199,951	1,858,224
1963-----	7,130,960	23,222,449	30,353,409	1,232,302
1964-----	4,655,330	18,515,928	23,171,258	1,316,247
1965-----	2,274,674	13,653,486	15,928,160	663,218
1966-----	2,202,585	32,617,821	34,820,406	1,322,461
1967-----	1,791,634	11,943,961	13,735,595	not available

¹ Includes 47,532 pounds originating waters north of State.

² Computed value, conversion factors calculated annually.

The bluefin tuna of the eastern Pacific ocean is a member of the coastal fauna of Chile, Baja California, and the United States. It inhabits subtropical and temperate water, and is rarely captured in tropical water. In commercial numbers, it is found from Point Conception, California, to Cape San Lucas, Baja California.

Spawning is believed to take place from May through July, south of Japan. Eggs, larvae, and juvenile stages have never been collected.

While bluefin are in California waters, anchovies make up the bulk of the diet. Sanddabs, surfperch, and white croakers also have been identified among the remains in their stomachs.

10. Sculpin

Total partyboat catch, 1947-1967: 817,988 fish.

Minimum and maximum catches: 11,477 (1959); 73,844 (1964).

Mean catch: 38,952.

Southern California landing operators rated this species tenth most important. To the angler, sculpin may be more noted for its venomous spines than it is for standard gamefish qualities. The lucky fisherman bringing one on board is always promptly advised in chorus, "don't touch him, he's poisonous." The venom is produced in tissue located in grooves along the sides of the heavy dorsal, anal, and pelvic fins (Halstead, 1959). A stab from one of these spines is said to be an agonizing experience.

Although many sport anglers are inclined to discard sculpin or give them away, commercial fishermen land relatively large catches regularly (Table 26). The commercial catch is taken almost exclusively with hook and line, particularly set lines. There are no specific commercial or sportfishing regulations affecting the sculpin fishery.

During recent years, sculpins have been caught from Point Arguello, California, south to Abreojos Point, Baja California. The population centers in southern California and they are most abundant in water shallower than 100 feet.

TABLE 26
Origin, Pounds, and Number of Fish
Commercial Sculpin Landings, 1961-1967

Year	California pounds	Mexico pounds	Total pounds	Number fish ¹
1961-----	26,718	--	26,718	20,552
1962-----	57,707	244	57,951	44,577
1963-----	75,209	312	75,521	58,093
1964-----	77,585	16,640	94,225	72,480
1965-----	76,678	6,058	82,736	63,643
1966-----	84,465	24,034	108,499	83,460
1967-----	56,045	26,611	82,656	63,581

¹ Computed value, conversion factor 1.3 pounds per fish.

A 15-inch sculpin would be a big one, although an 18-inch, 4-pound, 2-ounce specimen has been noted. It is believed that sculpins first spawn during their 3rd or 4th year, and that they live 15 years or longer. Spawning takes place from April through August. The eggs are imbedded in free-floating gelatinous egg-balloons. Hatching takes place at the surface within 5 days.

Sculpin eat a wide assortment of foods, including crabs, squid, octopus, shrimp, and fish.

11. Pacific Mackerel

Total partyboat catch, 1947-1967: 2,686,340 fish.

Minimum and maximum catches: 66,969 (1950); 315,037 (1954).

Mean catch: 127,921.

Five of 11 partyboat landing operators failed to rate Pacific mackerel. Those who did, ranked them eighth to seventeenth in importance. The Pacific mackerel is a small, vigorous fish that can give any angler a real battle, but it is the novice who has the most fun because he is not yet prejudiced against the species. On a partyboat, a few surly comments from the experienced fishermen soon let the newcomer know where he stands if he persists in fishing for mackerel.

The commercial catch is used primarily for canning. For years, mackerel supported one of California's most important fisheries. At present (1969) the catch is at an all time low (Table 27). Purse seines account for the bulk of the catch; scoop-boats have averaged less than 5% during the last decade.

Formerly, Pacific mackerel ranged from the Gulf of Alaska southward into the Gulf of California. They were never abundant north of Monterey Bay, and in recent years have become scarce north of Point Conception.

The offshore extent of Pacific mackerel spawning appears to be about 150 miles off southern California and 200 to 250 miles off central and northern Baja California. Some 2-year-old fish spawn, all spawn at 3 years.

Mackerel grow rapidly the first year, averaging over 10 inches. Thereafter, the rate slows sharply, 2-year-old fish are about 12 inches long, whereas they are 13 inches at 3, and an 8-year-old fish will be about 15½ inches long.

TABLE 27
Origin, Pounds, and Number of Fish
Commercial Pacific Mackerel Landings, 1961-1967

Year	California pounds	Mexico pounds	Total pounds	Number fish ¹
1961-----	44,110,194	--	44,110,194	68,231,000
1962-----	48,578,391	429	48,578,820	50,398,000
1963-----	40,241,832	844	40,242,676	31,698,000
1964-----	26,827,216	665	26,827,881	25,871,000
1965-----	7,050,059	--	7,050,059	9,765,000
1966-----	4,629,504	--	4,629,504	4,393,000
1967-----	1,166,607	--	1,166,607	not available

¹ Values computed *seasonally*, hence, not perfectly correlated with total pounds which is an *annual* statistic.

Mackerel are voracious feeders, contributing greatly to their hook vulnerability. One observer states that any animal matter, alive or dead, will suffice as food.

12. Giant Sea Bass

Total partyboat catch, 1947-1967: 5,983 fish.
 Minimum and maximum catches: 74 (1956); 622 (1967).
 Mean catch: 285.

Eight of 11 partyboat landing operators listed giant sea bass among the 15 most important gamefish in southern California. Although this species is the giant among all fish taken on partyboats, its numbers are small and the marine angler seldom sees, let alone captures, one.

Commercial fishing is carried on the year around, particularly in Mexico (Table 28). A market operator at San Pedro believes the average size of giant sea bass delivered to his market has decreased 20% in the last few years. Commercial fishermen in California are not hampered by any specific regulation(s), whereas sportfishermen are restricted to a 2-fish limit. Hook and line is favored by all fishermen, but a small portion of the commercial catch is taken with other gear. Skilled skin divers take giant sea bass with the spear gun.

TABLE 28
Origin, Pounds, and Number of Fish
Commercial Giant Sea Bass Landings, 1961-1967

Year	California pounds	Mexico pounds	Total pounds	Number fish ¹
1961-----	12,509	327,854	340,363	3,404
1962-----	8,188	438,021	446,209	4,462
1963-----	13,960	289,619	303,579	3,036
1964-----	14,018	208,697	222,715	2,227
1965-----	13,053	338,697	351,750	3,518
1966-----	7,486	333,481	340,967	3,410
1967-----	11,893	218,711	230,604	2,306

¹ Computed value, conversion factor 100 pounds per fish.

Giant sea bass range from San Francisco Bay south into the Gulf of California. They are most abundant at Anacapa, San Nicolas, and Los

Coronados Islands and between San Clemente and Oceanside on the mainland. Market fishermen claim that giant sea bass prefer a rocky bottom outside a kelp bed. Small fish are frequently taken inshore. In June 1963, a 7-foot, 539-pound fish was beached at San Clemente. The rings on the otoliths (ear stones) of this fish indicated it was about 60 years old. Older fish, 72-75 years, have been noted. Evidently, maturity takes place at 11 to 13 years. A fish of this age will weigh 50 to 60 pounds. The main spawning season occurs during July, August, and September.

Giant sea bass feed on many items, but fish predominate. Stomach contents have included anchovies, white croakers, jack mackerel, sheephead, ocean whitefish, sand bass, midshipmen, and crabs.

13. California Sheephead

Total partyboat catch, 1947-1967: 437,791 fish.

Minimum and maximum catches: 11,541 (1960); 52,967 (1966).

Mean catch: 20,847.

Three southern California landing operators rated sheephead among the top 10 gamefish. Five operators were not so enthusiastic, and three evidently considered the species of no consequence.

Anglers regard sheephead with some favor. This sizeable, colorful fish puts up a strong, tugging battle, but is frequently discarded because of its undeserved reputation for poor eating. From a high of 100,227 pounds in 1948, the commercial catch has declined rapidly, and is presently much smaller than the partyboat catch (Table 29). Market operators prefer rockfish, a more acceptable fresh product than sheephead.

TABLE 29
Origin, Pounds, and Number of Fish
Commercial Sheephead Landings, 1961-1967

Year	California pounds	Mexico pounds	Total pounds	Number fish ¹
1961-----	9,651	2,951	12,602	4,065
1962-----	15,341	4,986	20,327	6,557
1963-----	25,210	2,801	28,011	9,035
1964-----	13,404	4,530	17,934	5,785
1965-----	8,803	3,350	12,153	3,920
1966-----	13,276	2,708	15,984	5,156
1967-----	18,605	1,023	19,628	6,331

¹ Computed value, conversion factor 3.1 pounds per fish.

There is no season or bag limit for anglers or market fishermen. Sheephead may be taken by any legal gear, including lobster traps during the spiny lobster season.

They are not abundant north of Point Conception, but have been taken from Monterey Bay south to Cape San Lucas, Baja California, and throughout much of the Gulf of California. Sheephead inhabit rocky areas, particularly around kelp forests. First spawning probably takes place during the summer months at 4 or 5 years of age. This is a long-lived species, "Old Sarge" lived for 23 years in Steinhart Aquar-

ium in San Francisco, and a 29-pound male was judged to be 53 years old from the rings on its opercle (cheek bone).

Lobster is said to be a favorite food item, stomach contents have included barnacles, sea urchins, mussels, worms, crabs, octopus, and other items.

14. Lingcod

Total partyboat catch, 1947-1967: 600,957 fish.

Minimum and maximum catches: 13,011 (1953); 44,676 (1966).

Mean catch: 28,617.

Only one southern California partyboat landing operator viewed lingcod among the top 10 gamefish in 1968. The lingcod is not abundant south of Point Conception. Central and northern California partyboat catches of lingcod outnumbered southern catches 6 to 1 during the 10 years 1958-1967.

Commercially, lingcod are caught with handlines, trolling lines, and trawl nets; trawling is least important. Most of the catch is utilized fresh. The fishery appears to be stabilized between 0.9 to 1.5 million pounds (Table 30). The greatest catches, approximately 2.0 million pounds, were made in 1947 and 1948. From 1961 through 1967, the number of lingcod landed by the commercial fleet was about three times greater than the partyboat catch for the same period. Lingcod may be taken by any legal gear. There is no season, size, or bag limit for commercial fishing. Sportsmen must adhere to a 10-fish limit.

TABLE 30
Origin, Pounds, and Number of Fish
Commercial Lingcod Landings, 1961-1967

Year	California pounds	Waters north of State pounds	Waters south of State pounds	Total pounds	Number fish ¹
1961-----	1,361,726	78,217	--	1,439,943	179,992
1962-----	1,048,818	62,995	391	1,112,204	139,025
1963-----	1,047,923	84,594	491	1,133,008	141,626
1964-----	810,301	25,375	701	836,377	104,547
1965-----	785,378	27,312	--	812,690	101,586
1966-----	790,960	8,919	424	800,303	100,037
1967-----	921,968	16,687	--	938,655	117,331

¹ Computed value, conversion factor eight pounds per fish.

Lingcod are distributed from the Bering Sea to northern Baja California. The region of greatest abundance lies north of California; it is moderately abundant in California waters. This species lives near the bottom around rocky areas, reefs, and in kelp beds especially where there is a strong tidal current. A 5-foot, 70-pound specimen was reported from British Columbia in 1866, and there are unverified reports of 150-pounders, but it is unusual to take lingcod exceeding 52 inches and 55 pounds.

Female lingcod grow faster than males, and attain a greater size and age. First maturity occurs when the fish is about 23 inches long, and 3 years old. Practically all lingcod are mature at 25½ inches and 4 years. The eggs are adhesive and stick in large masses to rocky sub-

strate. The male guards the developing eggs until they hatch. Lingcod feed on anything alive in their environment, including rockfishes, her-ring, squid, small sharks, and small lingcod. Young lingcod utilize crus-taceans until they are large enough to take fish.

15. Jack Mackerel

Total partyboat catch, 1947-1967: 463,418 fish.

Minimum and maximum catches: 202 (1951); 196,280 (1953).

Mean catch: 22,068.

Although southern California landing operators, in a recent survey, were not enthusiastic about jack mackerel, this was not true in 1953. In that year, large "jacks" appeared in great numbers on southern California fishing grounds to provide a much needed boost to the ail-ing partyboat fishery. More than one skipper was not at all sure what he was catching. Some of these fish were called amberjacks, saurels, Spanish mackerel, and so on. Jack mackerel have not made more than a modest contribution to the southern California partyboat fishery since 1953.

The commercial fishery was not of major importance until 1947, when it became a "substitute sardine" fishery. Since then jack mack-erel may have substituted for Pacific mackerel on occasion, but the catch of both species has been on a sharp downtrend since 1962 (Tables 31 and 27).

TABLE 31
Origin and Pounds
Commercial Jack Mackerel Landings, 1961-1967

Year	Total pounds	Year	Total pounds
1961.....	97,606,304	1965.....	66,666,380
1962.....	89,978,933	1966.....	40,862,409
1963.....	95,442,284	1967.....	38,180,547
1964.....	189,692,911		

¹ Includes 20,000 pounds from south of State.

The only fishing restrictions are those prohibiting the use of purse seines and lampara nets in specified areas.

Jack mackerel are distributed extensively, ranging from Gulf of Alaska southward at least to Cape San Lucas, Mexico, and up to 1300 miles seaward. The commercial fishery extends from Monterey to San Diego, with most of the catch landed at Los Angeles, and lesser amounts at Monterey, Port Hueneme, and Newport Beach. A moderate fishery exists off Baja California at Ensenada and Cedros Island.

This species is known to live to an old age, perhaps in excess of 30 years. Fifty percent of the 2-year-old females, about 10 inches long, are mature. At 3 years, all female jack mackerel are mature. Spawning takes place during spring and early summer over an extensive area centered 80 to 240 miles offshore. Large adults may be around 5 pounds, and 3 feet in length.

Food studies show that pelagic crustaceans are very important, but anchovies, lanternfish, and juvenile squid are regularly eaten.

16. Salmon

Total partyboat catch, 1947-1967: 1,409,272 fish.

Minimum and maximum catches: 5,018 (1947); 128,978 (1955).

Mean catch: 67,108.

Prior to 1967, salmon would not have been considered one of the 20 most important species groups in southern California. From 1959 through 1966, southern California partyboats annually logged about 23 salmon. In 1967, southern boats reported 2,923 salmon and approximately 3,800 in 1968. Skiff and private boat fishermen also took many salmon during the same period and in the same areas, but the tally is unknown.

Of the five Pacific salmon, king and silver salmon are by far the most important to California sport and market fishermen. In 1966, approximately 9½ million pounds of salmon were landed in California (Table 32), and these were valued at \$4.8 million. Only the landings of bluefin, skipjack, and yellowfin tuna were of greater value. Season, size limitations, local regulations, and bag limits are in force. Anglers and market fishermen should be fully cognizant of these laws before undertaking salmon fishing.

TABLE 32
Origin, Pounds, and Number of Fish
Commercial Salmon Landings, 1961-1967

Year	California pounds	Waters north of State pounds	Total pounds	Number fish ¹
1961-----	8,637,907	--	8,637,907	852,669
1962-----	6,672,717	144	6,672,861	604,026
1963-----	7,859,035	151	7,859,186	824,409
1964-----	9,481,215	--	9,481,215	933,831
1965-----	9,737,775	--	9,737,775	922,664
1966-----	9,446,995	--	9,446,995	999,367
1967-----	7,401,591	138	7,401,729	752,414

¹ Computed value, conversion factor recalculated annually.

Both king and silver salmon range from about San Diego to Alaska and south on the Asiatic side of the Pacific Ocean, to Japan.

A 50-pound king salmon is considered a giant, although the record stands at 126½ pounds. The largest silver salmon weighed 31 pounds. Sport caught silver and king salmon average 7 to 8 pounds. These fish enter freshwater streams and rivers to spawn. The availability of suitable spawning beds and maintenance of water quality pose ever present problems to salmon, and to the people of California. After spawning, salmon die a natural death.

In a few months to a year after birth, young salmon leave fresh water to enter the sea. A steady diet of seafood pushes their growth at an amazing rate. A recent study showed that king salmon taken in the San Francisco area utilized northern anchovies, rockfish, euphausiides, Pacific herring, squid, and crab larvae. Silver salmon feed on similar items.

17. Cabezon

Total partyboat catch, 1947-1967: 215,705 fish.

Minimum and maximum catches: 2,516 (1960); 18,195 (1956).

Mean catch: 10,272.

The cabezon is an important gamefish to the anglers of central and northern California. Angling is successful from shore, pier, jetty, and boat. In southern California, the cabezon does not rank as an important fish, although the catch may equal that from the central and northern areas. During the 10-year period 1958 through 1967, 41% of the partyboat catch of cabezon was logged from southern California.

The sportfishing and diving catch may be two or three times greater than the commercial catch (Table 33). Most of the commercial catch is taken with setlines incidental to rockfish fishing. Other than a 10-fish sport bag limit, restrictive catch regulations do not exist.

TABLE 33
Origin, Pounds, and Number of Fish
Commercial Cabezon Landings, 1961-1967

Year	Total ² pounds	Number fish ¹	Year	Total ² pounds	Number fish ¹
1961-----	4,952	--	1965-----	7,438	--
1962-----	2,474	--	1966-----	12,599	--
1963-----	2,811	--	1967-----	14,284	--
1964-----	5,281	--			

¹ A satisfactory conversion factor is not available.

² All California-caught.

The range of the cabezon extends from northern British Columbia to Abrejos Point, Baja California. They are found the year around on almost all rocky bottoms from tide pools to depths in excess of 250 feet. The younger, smaller fish inhabit inshore areas, but larger fish prefer offshore life with feeding forays to shallow water during incoming tides.

A 39-inch cabezon was recorded in 1962, prior to that a 28½-inch fish weighing over 15 pounds was the largest authentic record. Male cabezon mature at 2 years and at 13½ inches, females reach maturity at 3 years and 17½ inches. Females grow faster and attain a larger size. Spawning takes place November through March. The eggs are attached to selected rocky sites where they are guarded by the male until hatching occurs.

The larvae and young are pelagic, feeding primarily on planktonic crustaceans. Juveniles feed on small tide-pool fishes and crustaceans. Adults continue feeding on fishes and crustaceans, adding abalone, octopus, limpets, chitons and clams to the diet.

18. Miscellaneous Flatfish

Total partyboat catch, 1947-1967: 484,371 fish.

Minimum and maximum catches: 5,835 (1960); 64,872 (1953).

Mean catch: 23,065

Fifty percent of the partyboat catch of miscellaneous flatfish is taken in southern California. The most important species are sand-

dabs, fantail sole, and petrale sole. Central and northern California partyboat anglers depend upon starry flounder, sanddabs, petrale sole, and rock sole. Other flatfishes enter the catch, but are relatively insignificant.

In the commercial market, "sole" refers to almost every flatfish. Petrale sole and sanddabs are important market fish while starry flounder is less important, 500,000 pounds being marketed annually. Otter trawls produce most of the catch, but in general, flatfish are said to be underutilized.

As a group, sole generally feed on bottom living invertebrates. The great range in size of these flatfishes means a large range of food items. The large species being more dependent on fish, large cephalopods, and crustaceans. Fantail soles eat crustaceans almost exclusively, while petrale soles prefer octopus and squid. The young of all flatfish undoubtedly utilize small planktonic forms.

19. Sablefish

Total partyboat catch, 1947-1967: 123,741 fish.

Minimum and maximum catches: 9 (1959); 36,724 (1954).

Mean catch: 5,892.

Ordinarily, sablefish contribute very little to partyboat fishing, but in some years, they are quite important locally. In southern California, Redondo Beach and the Long Beach-Newport Beach area produce relatively high catches at irregular intervals. In central California, Santa Cruz boats have made creditable catches, particularly from 1964 through 1967.

The peak commercial catch of 6,259,000 pounds was made in 1945. Annual fluctuations in the amount of fish landed are due mainly to demand, rather than to changes in availability of the stocks. Since 1961, the commercial fishery has been increasingly productive (Table 34). Baited longlines and otter trawls account for nearly all sablefish caught in California waters. There are no legal restrictions on the size or weight of fish landed by either sport or commercial fishermen.

TABLE 34
Origin, Pounds, and Number of Fish
Commercial Sablefish Landings, 1961-1967

Year	California pounds	Waters north of State pounds	Waters south of State pounds	Total pounds	Number fish ¹
1961-----	1,562,897	53,531	100	1,616,528	see note ¹
1962-----	1,948,538	66,699	--	2,015,237	
1963-----	1,701,780	107,569	--	1,809,349	
1964-----	2,419,191	44,206	55	2,463,452	
1965-----	2,814,109	49,441	--	2,863,550	
1966-----	3,145,883	70,056	--	3,215,939	
1967-----	3,768,959	29,534	--	3,798,493	

¹ A satisfactory conversion factor is not available.

Sablefish are distributed from central Baja California to northwestern Alaska. Along the southern California coast they are uncommon and of relatively small size in areas frequented by partyboats. This

is a bottom dwelling fish, occurring most abundantly at depths exceeding 350 fathoms off southern California.

A record sablefish is said to have weighed 56 pounds. Females grow larger than males, attaining a maximum length of at least 42 inches and a weight of 30 pounds. They are about 13 inches long, and weigh one-half pound at the end of the first year. Some 3-year-old fish are mature, and these are 20 inches long and weigh over 2 pounds. Females attain a maximum age of at least 20 years, males somewhat less.

Adult sablefish feed primarily upon fish, squid, octopus, and other invertebrates that are abundant locally.

20. White Croaker

Total partyboat catch, 1947-1967: 867,809 fish.

Minimum and maximum catches: 6,895 (1959); 121,053 (1949).

Mean catch: 41,324.

The white croaker is important to pier and skiff fishermen from San Francisco southward, but to the partyboater, it is a nuisance 90% of the time.

The entire commercial catch is sold fresh. Market demand has maintained the fishery at a reasonably uniform level. From 1961 through 1967, the catch varied from 496,000 to 1,135,000 pounds (Table 35). It may be safe to say that the total sportcatch of white croaker varies to the same degree and within the same limits as the commercial catch.

TABLE 35
Origin, Pounds, and Number of Fish
Commercial White Croaker Landings, 1961-1967

Year	California pounds	Waters south of State pounds	Total pounds	Number fish ¹
1961-----	889,164	--	889,164	1,481,940
1962-----	687,633	--	687,633	1,146,055
1963-----	550,653	406	551,059	918,431
1964-----	838,512	72	838,584	1,397,640
1965-----	1,135,316	250	1,135,566	1,892,610
1966-----	790,997	85	791,082	1,318,470
1967-----	496,378	39	496,417	827,361

¹ Computed value, conversion factor 0.6 pounds per fish.

White croaker are not abundant north of San Francisco, although catches have been made off Vancouver Island, British Columbia. Magdalena Bay, Baja California, marks the southern limit of distribution.

Although there is an unverified account of a 4-pound white croaker, fish over 2 pounds are extremely rare. The largest fish encountered by Miller and Gotshall (1965) was 15½ inches long. A 14½-inch specimen, found in a trawl catch in southern California, was full of roe, and weighed 1.4 pounds.

White croaker may live 15 years. Some spawning has been noted in 2- and 3-year-old fish, which were 5 to 6 inches long.

White croakers eat animal foods, fresh and otherwise. In turn, they fall prey to large fish of many kinds.

SUMMARY

In 1898, the Tuna Club of Santa Catalina Island was organized. As much as anything else, the Club hoped to discourage the practice of handlining the magnificent game fish which then abounded in southern California waters. Two-man launches, from which rod and reel fishing was conducted, came into being, marking the beginning of the great partyboat fleet that exists today.

Tuna Club anglers concentrated their efforts on bluefin ("leaping") and yellowfin tuna, giant sea bass, marlin, swordfish, yellowtail, and white seabass. Partyboat and barge fishermen of the 1920's, and later, found that barracuda, kelp and sand bass, California halibut, white croaker, and Pacific mackerel were the chief fare. Salmon, rockfish, and flatfish occupied central and northern California anglers.

In 1935, the California Legislature enacted a bill requiring written catch logs from all partyboat operators. Although the log program was interrupted during World War II, it was fully reinstituted by 1947. During the 21-year period 1947-1967, 400 to 600 boats participated in the fishery. Competition inevitably forced many changes in boats and shoreside facilities. Governmental regulations also affected boat operations from safety, liability, and conservation standpoints.

The statewide partyboat fleet operates in four distinct areas: northern, central, southern California, and the San Francisco bays-Sacramento River delta area. The fleet of each area fishes for somewhat different species, and the boats of each area differ in age, length, frequency of operation, angler capacity, and other features. In 1963, for example, 18 northern California partyboats had carrying capacities of from 6 to 28 anglers, with an average of 9.7. Carrying capacities of the 111 active bays-delta partyboats averaged 17.2 anglers. Northern anglers concentrated on a salmon-rockfish combination, but bays-delta fishermen harvested a salmon-striped bass crop. Forty-eight central California boats were capable of transporting an average of 31.9 anglers, while 197 southern California partyboats could handle 35.9, on the average. Central anglers depended upon rockfishes, flatfishes, lingcod, and salmon; southern California partyboat anglers took barracuda, kelp and sand bass, bonito, yellowtail, rockfishes, and a number of other species.

When fishing, northern California boats utilized 68.1% of their available capacity, leading other area fleets. Bay-delta boats utilized 49%, southern California 48%, and central California 35% of total capacity. Commercial fishing was carried on by some vessels in each area, but was most common, from a percentage standpoint, in the northern fleet.

In southern California, the number of anglers carried tended to increase as the number of trips increased. A line fitted to plotted data, anglers per trip against trips logged, showed a curvilinear relationship; the formula was $Y = 11.64 + .099X - .00013X^2$. Partyboats were active every month in 1963, but June, July, and August led, about equally. Trips per active vessel were lowest in April, highest in August, 12.7 compared to 21.9 trips per vessel month, respectively. Of 20,673 trips reported by the southern fleet, 11,962 were all-day, 967 single half-day, and 7,744 multiple trips per day.

During the 21-year period, 1947-1967, the statewide marine party-boat fleet reported a catch in excess of 71 million fish. Consecutive catch records were maintained of 28 species and species groups. Annual catch totals ranged from 2.0 to 5.4 million fish. An estimated 435,000 anglers fished from partyboats in 1947; in 1966, 857,000 anglers were tallied.

In 1968, southern California landing operators named the 20 most important species of game fish. Barracuda was considered most important overall, followed by kelp and sand bass, California yellowtail, Pacific bonito, California halibut, etc., in rank order.

All except 1 of the 20 species entered into the commercial fishery. Sportfishing regulations exist for 12 of the 20 species, but not for albacore, bluefin tuna, sculpin, Pacific mackerel, sheephead, jack mackerel, sablefish and white croaker. Purse seining for barracuda, yellowtail, and white seabass is prohibited in California. Kelp and sand bass may not be fished commercially in California waters.

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APPENDIX 1

Common and Scientific Names

Abalone.....	<i>Haliotis</i> spp.	Mackerel, jack.....	<i>Trachurus symmetricus</i>
Albacore.....	<i>Thunnus alalunga</i>	Pacific.....	<i>Scomber japonicus</i>
Anchovy, northern.....	<i>Engraulis mordax</i>	Marlin, striped.....	<i>Tetrapturus audax</i>
Barracuda, California.....	<i>Sphyræna argentea</i>	Midshipman.....	<i>Porichthys</i> spp.
Bass, giant sea.....	<i>Stereolepis gigas</i>	Mola (ocean sunfish).....	<i>Mola mola</i>
kelp.....	<i>Paralabrax clathratus</i>	Moray, California.....	<i>Gymnothorax mordax</i>
sand.....	<i>P. nebulifer</i>	Octopus.....	<i>Octopus</i> spp.
spotted sand.....	<i>P. maculatofasciatus</i>	Opah (moonfish).....	<i>Lampris regius</i>
striped.....	<i>Roccus saxatilis</i>	Queenfish.....	<i>Seriphus politus</i>
Bonefish.....	<i>Albula vulpes</i>	Rockfish.....	<i>Sebastes</i> spp.
Bonito, Pacific.....	<i>Sarda chilensis</i>	Sablefish.....	<i>Anoplopoma fimbria</i>
Cabazon.....	<i>Scorpaenichthys marmoratus</i>	Salmon, king.....	<i>Oncorhynchus tshawytscha</i>
Cockle, basket.....	<i>Clinocardium nuttalli</i>	silver.....	<i>O. kisutch</i>
smooth giant.....	<i>Laevicardium elatum</i>	Sanddabs.....	<i>Citharichthys</i> spp.
spiny.....	<i>Trachycardium quadragenarium</i>	Sardine, Pacific.....	<i>Sardinops caeruleus</i>
Crab, cancer.....	<i>Cancer</i> spp.	Sargo.....	<i>Anisotremus davidsonii</i>
red.....	<i>Pleuroncodes planipes</i>	Sculpin.....	<i>Scorpaena guttata</i>
Croaker, black.....	<i>Cheilotrema saturnum</i>	Seabass, white.....	<i>Cynoscion nobilis</i>
white.....	<i>Genyonemus lineatus</i>	Señorita.....	<i>Ozyjulis californica</i>
yellowfin.....	<i>Umbina roncadore</i>	Serranid, red.....	<i>Anthias gordonensis</i>
Dolphinfish.....	<i>Coryphaena hippurus</i>	Shad, American.....	<i>Alosa sapidissima</i>
Flounder, starry.....	<i>Platichthys stellatus</i>	Sheephead, California.....	<i>Pimelometopon pulchrum</i>
Flyingfish, California.....	<i>Cypselurus californicus</i>	Sole, fantail.....	<i>Xystreurys hiolepis</i>
Garibaldi.....	<i>Hypsypops rubicunda</i>	petrale.....	<i>Eopsetta jordani</i>
Greenling, kelp.....	<i>Hexagrammos decagrammus</i>	rock.....	<i>Lepidopsetta bilineata</i>
Hake, Pacific.....	<i>Merluccius productus</i>	Spiny lobster.....	<i>Panulirus interruptus</i>
Halfmoon.....	<i>Medialuna californiensis</i>	Sturgeon, green.....	<i>Acipenser medirostris</i>
Halibut, California.....	<i>Paralichthys californicus</i>	Surfperch.....	<i>Embiotocidae</i>
Herring, round.....	<i>Etrumeus teres</i>	Swordfish.....	<i>Xiphias gladius</i>
thread.....	<i>Opisthonema medirastre</i>	Tuna, bluefin.....	<i>Thunnus thynnus</i>
Jacksmelt.....	<i>Atherinopsis californiensis</i>	skipjack.....	<i>Katsuwonus pelamis</i>
Kelpfish, giant.....	<i>Heterostichus rostratus</i>	yellowfin.....	<i>Thunnus albacares</i>
Lanternfish.....	<i>Myctophidae</i>	Turbot, diamond.....	<i>Hypsosetta guttulata</i>
Lingcod.....	<i>Ophiodon elongatus</i>	Pleuronichthys spp.	
Lizardfish, California.....	<i>Synodus lutoceps</i>	Whitefish, ocean.....	<i>Caulolatilus princeps</i>
		Yellowtail, California.....	<i>Seriola dorsalis</i>

APPENDIX 2 Number of Fish by Species, Angler Days, and Angler Hours Reported and Number of Mobile Boats Reporting California Partyboat Fleet, 1947-1967

Species	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957
Albacore.....	11,445	15,414	22,692	118,087	75,924	187,267	23,363	20,098	78,688	65,814	41,540
Barracuda, California.....	677,449	384,056	366,423	256,367	269,545	336,962	170,550	282,552	154,962	87,603	577,184
Bass, giant sea.....	160	439	212	179	179	92	135	102	162	74	151
Bass, kelp, sand.....	682,789	630,223	796,959	619,397	781,609	536,075	711,395	876,667	497,343	470,362	609,071
Bass, striped.....	†	†	†	†	†	†	†	†	†	†	†
Bonito, Pacific.....	36,496	14,519	5,372	2,359	14,475	7,649	6,321	70,078	22,409	61,404	258,555
Cabezon.....	9,886	14,590	14,125	15,971	18,029	10,847	9,650	13,132	12,366	18,195	14,479
Croaker, white.....	58,034	89,825	121,053	76,765	62,945	77,948	57,606	66,964	27,349	16,289	8,648
Croaker, yellowfin.....	8,166	3,667	3,032	999	663	708	1,367	2,411	595	1,099	275
Dolphinfish.....	15	--	--	1	--	2	--	12	--	2	2,805
Flatfish, miscellaneous.....	13,012	16,513	21,158	29,437	48,998	35,677	64,872	48,410	39,136	23,912	19,390
Halibut, California.....	104,436	143,462	104,639	85,935	59,295	34,158	34,292	59,674	35,802	21,661	10,795
Lingcod.....	22,011	24,406	26,131	23,868	24,052	17,389	13,011	22,940	29,113	37,649	38,012
Mackerel, jack.....	4,505	2,351	2,932	557	202	4,395	196,280	19,407	39,473	23,493	6,878
Mackerel, Pacific.....	148,041	203,012	95,158	66,969	47,188	76,568	61,467	315,037	151,018	121,136	151,960
Marlin.....	37	58	28	115	58	57	4	9	6	32	22
Rockfish.....	193,652	410,665	570,637	679,164	721,808	705,761	696,480	1,149,367	1,737,707	2,036,708	1,395,151
Sablefish.....	9,159	3,546	45	96	581	87	6,487	36,724	15,992	5,177	271
Salmon.....	5,018	11,209	23,057	56,337	71,970	86,472	98,723	119,911	128,978	114,505	44,701
Sculpin.....	26,062	52,554	37,030	53,419	35,721	39,068	28,952	33,462	28,613	36,558	13,473
Seabass, white.....	20,724	24,078	65,545	54,718	44,367	41,043	28,182	41,588	30,103	17,755	19,030
Sheephead, California.....	13,004	17,261	15,440	14,281	20,416	16,481	17,349	21,499	14,102	14,789	15,105
Sturgeon.....	†	†	†	†	†	†	†	†	2	2	2
Tuna, Bluefin.....	2,194	104	1,941	27	7,142	145	4,276	966	8,179	34,187	6,428
Tuna, Yellowfin.....	137	18	11	6	56	34	--	--	1	78	325
Tuna, skipjack.....	698	460	9	31	132	38	279	50	10	13	6,453
Whitefish, ocean.....	5,160	14,124	14,576	14,925	8,828	10,003	4,963	9,952	9,508	7,951	4,389
Yellowtail, California.....	6,948	13,028	17,710	6,971	23,721	59,263	27,702	40,872	36,468	29,198	242,686
All others.....	11,194	20,437	13,879	13,432	12,688	22,044	16,452	22,653	15,800	15,349	11,808
Total.....	2,070,432	2,110,019	2,335,794	2,190,413	2,350,644	2,306,133	2,280,158	3,274,537	3,113,863	3,262,995	3,499,585
Number angler days.....	359,436	407,757	469,915	544,264	556,949	588,087	502,146	532,190	496,286	523,063	536,175
Number anglers.....	§	§	§	§	§	§	§	§	§	§	§
Number angler hours.....	§	§	§	§	§	§	§	§	§	§	§
Number boats statewide.....	343	430	464	596	562	593	599	612	556	515	454

Species	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Albacore.....	6,482	39	76,075	184,891	229,314	158,372	112,358	99,771	74,680	96,497
Barracuda, California.....	762,723	1,195,585	755,408	391,884	335,507	483,699	303,070	443,304	892,697	470,480
Bass, giant sea.....	203	184	228	310	390	598	353	580	548	622
Bass, kelp, sand.....	653,671	428,426	478,656	613,604	789,149	1,210,344	1,103,394	1,230,313	1,278,939	1,003,914
Bass, striped.....	†	†	*30,866	*42,357	*39,682	*58,551	34,163	16,488	44,869	23,794
Bonito, Pacific.....	422,568	776,336	1,199,919	849,426	798,725	775,719	1,298,804	806,322	644,415	349,952
Cabezon.....	9,909	5,329	2,516	9,728	4,538	9,728	6,491	7,575	10,293	5,419
Croaker, white.....	20,000	6,805	8,633	21,782	27,256	37,225	23,269	21,448	17,286	20,590
Croaker, yellowfin.....	95	132	275	325	778	562	993	1,388	1,619	645
Dolphinfish.....	--	4	1	3	--	139	4	341	48	198
Flatfish, miscellaneous.....	9,265	7,755	5,835	9,316	8,953	8,005	14,449	15,755	20,238	24,282
Halibut, California.....	16,192	25,365	48,310	108,011	118,966	125,669	141,465	118,213	88,726	63,582
Lingcod.....	39,801	31,206	28,232	23,466	25,399	25,263	27,513	33,260	44,676	43,559
Mackrel, jack.....	27,867	11,820	8,537	28,891	9,029	9,342	6,577	25,619	19,027	16,236
Mackrel, Pacific.....	136,607	88,952	79,370	113,983	116,738	146,560	101,219	151,896	205,090	108,366
Marlin.....	84	349	9	8	2	37	48	46	40	81
Rockfish.....	1,561,132	1,177,979	1,015,673	898,641	956,438	962,659	966,801	1,347,430	1,688,718	1,894,057
Sablefish.....	39	9	39	622	2,231	1,232	4,722	8,601	21,693	6,388
Salmon.....	52,676	55,945	37,941	42,965	87,612	72,457	92,021	51,677	70,151	84,946
Sculpin.....	13,743	11,477	15,111	26,672	33,314	53,896	73,844	71,888	69,851	63,280
Seabass, white.....	34,039	10,593	15,697	14,082	14,564	19,800	14,901	9,775	3,972	3,385
Sheephead, California.....	18,120	17,146	11,541	15,210	13,488	18,443	26,822	41,651	52,967	42,676
Sturgeon.....	--	2	--	1	1	3	832	1,731	1,874	2,258
Tuna, Bluefin.....	884	1,330	97	2,268	2,453	737	693	92	1,998	3,166
Tuna, Yellowfin.....	13	4	2,124	21	3	80	103	101	241	10,801
Tuna, skipjack.....	491	514	378	11	40	8,149	3,961	2,142	1,012	1,656
Whitfish, ocean.....	6,143	5,608	5,850	6,647	6,157	6,231	13,810	15,587	15,587	18,184
Yellowtail, California.....	123,384	457,350	254,969	42,367	21,826	45,705	39,104	18,367	80,163	31,392
All others.....	14,749	12,191	7,754	13,225	13,437	29,049	31,503	94,976	57,003	53,758
Total.....	3,950,880	4,323,575	4,090,034	3,453,633	3,655,993	4,278,502	4,434,176	4,634,558	5,408,420	4,444,164
Number angler days.....	515,152	557,154	516,255	495,805	595,866	643,155	695,373	688,103	857,000	780,102
Number anglers.....	§	§	637,498	593,916	595,866	3,193,687.7	3,478,995.9	3,483,217.5	4,193,704.5	3,880,630.4
Number angler hours.....	§	§	2,710,890.2	2,861,660.2	2,903,001.6	3,377,377	3,733	363	407	397
Number boats statewide.....	382	396	402	384	358	387	373	363	407	397

* Ocean and San Francisco Bay catch (Sacramento-San Joaquin Delta catches not included until 1964).

† Catch statistics maintained elsewhere until 1960—See Chadwick, 1962.

‡ Fishery closed 1917-1953.

§ Not available until 1960. Must be estimated 1947-1959.

This statistic discontinued in 1962.

APPENDIX 3
Partyboat Catch and Effort for Crescent City, Trinidad, Smith River, Klamath, Little River, 1947-1967

Species	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Salmon.....	--	11	--	116	770	1,123	884	1,785	1,602	2,642	2,955	714	954	1,914	627	1,896	1,763	2,545	1,197	2,408	2,252
Rockfishes.....	--	171	--	1,349	1,342	1,361	1,361	1,198	1,564	3,399	2,580	3,445	2,072	923	959	24	156	287	316	176	713
Lingcod.....	--	--	--	61	53	35	74	158	272	703	400	277	278	121	103	--	2	9	--	3	8
Cabezon.....	--	--	--	--	8	--	2	7	11	8	26	11	3	11	12	--	--	1	--	1	--
Albacore.....	--	--	--	4	--	--	--	--	--	48	14	--	15	--	--	--	--	--	33	--	--
Miscellaneous.....	--	51	--	1	12	6	1	36	4	24	25	30	45	7	7	--	3	5	--	--	144
Total catch.....	--	260	--	1,531	2,185	2,525	3,033	3,184	3,453	6,824	5,300	4,477	3,367	2,976	1,708	1,920	1,924	2,847	1,546	2,858	3,117
Angler days.....	--	73	--	231	673	729	700	820	1,300	1,833	2,052	1,007	1,797	1,621	1,148	--	--	--	--	--	--
Anglers.....	†	†	†	†	†	†	†	†	†	†	†	†	†	†	1,148	1,130	1,466	2,346	1,331	1,749	2,300

† Not available until 1960.

APPENDIX 4
Partyboat Catch and Effort for Eureka and Fields Landing, 1947-1967

Species	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Salmon.....	14	49	432	314	2,356	3,982	5,240	5,093	4,707	2,513	2,231	386	777	1,879	1,102	2,135	2,504	2,335	1,811	1,373	972
Rockfishes.....	14	77	54	48	50	160	271	35	45	325	938	558	332	456	173	513	393	335	1,059	126	380
Lingcod.....	--	4	3	--	3	2	3	1	--	1	12	--	--	3	5	--	1	--	--	--	1
Misc. flatfish.....	23	--	3	7	1	5	2	--	1	--	--	--	--	2	12	7	21	23	38	9	3
Albacore.....	--	--	--	--	--	--	--	--	--	70	32	--	18	--	--	--	--	--	--	--	--
Miscellaneous.....	1	--	3	1	2	--	8	1	7	6	7	--	--	25	--	9	5	5	4	--	30
Total.....	52	130	495	370	2,412	4,156	5,824	5,130	4,760	2,915	3,220	944	1,132	2,377	1,285	2,698	2,924	2,698	2,912	1,515	1,386
Angler days.....	16	55	623	393	1,552	1,961	2,481	2,471	2,830	1,898	1,394	489	1,020	1,941	1,278	1,418	1,531	1,537	1,506	1,305	1,378
Anglers.....	†	†	†	†	†	†	†	†	†	†	†	†	†	†	1,278	1,418	1,531	1,537	1,506	1,305	1,378

† Not available until 1960.

APPENDIX 5
Partyboat Catch and Effort for Fort Bragg, Albion and Pt. Arena, 1947-1967

Species	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Salmon.....	--	--	--	7	--	909	4,054	4,392	3,642	5,131	1,914	616	717	418	407	2,130	3,004	3,831	1,413	2,528	2,692
Rockfishes.....	--	--	--	12	--	105	67	540	280	950	449	420	1,533	627	1,369	988	1,156	763	1,977	1,376	865
Lingcod.....	--	--	--	--	1	--	16	67	90	92	78	55	234	72	183	54	84	141	269	222	106
Misc. flatfish.....	--	--	--	--	--	--	--	2	2	3	3	6	5	8	--	2	1	1	34	335	10
Cabezon.....	--	--	--	--	--	--	3	74	--	7	1	6	7	4	19	13	21	28	38	48	24
Miscellaneous.....	--	--	--	--	--	--	--	1	--	11	1	34	27	13	35	--	5	4	45	25	33
Total.....	--	--	--	21	--	1,014	4,140	5,076	4,014	6,194	2,446	1,137	2,533	1,142	2,013	3,187	4,271	4,768	3,776	4,534	3,730
Angler days.....	--	--	--	12	--	355	1,235	1,413	1,895	3,374	1,478	1,060	1,574	832	606	1,883	2,505	3,154	2,474	4,193	--
Anglers.....	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	3,658

† Not available until 1960.

APPENDIX 6
Partyboat Catch and Effort for Bodega Bay, Dillon Beach, Marshall, Inverness and Tomales Bay, 1947-1967

Species	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Rockfishes.....	--	341	2,000	4,902	18,221	20,440	24,980	19,037	9,422	13,332	15,187	40,775	19,638	31,650	21,586	18,400	26,767	18,955	26,463	24,594	31,476
Salmon.....	3	5	28	34	137	240	1,336	2,253	7,501	3,426	707	1,221	737	235	362	816	449	1,378	463	883	1,021
Lingcod.....	2	214	714	968	1,789	1,046	1,157	1,333	541	832	2,075	2,698	1,500	1,055	979	795	836	766	533	528	570
Misc. flatfishes.....	--	14	6	70	536	739	491	466	117	182	150	170	100	210	181	208	176	247	163	217	685
Cabezon.....	--	401	764	1,750	1,573	624	376	200	74	125	180	201	95	136	136	48	155	135	125	54	56
Kelp greening.....	--	--	57	151	355	111	2	64	31	20	27	153	8	18	12	--	19	15	15	17	13
Pacific hake.....	--	--	2	2	6	--	15	93	93	56	--	--	--	--	--	100	--	535	5	350	250
Miscellaneous.....	--	380	30	142	13	36	81	35	76	42	73	249	121	373	205	141	40	30	64	31	47
Total.....	5	1,355	3,601	8,017	22,600	23,236	28,438	23,481	17,855	18,015	18,399	45,467	22,199	33,678	23,461	20,508	28,442	22,046	27,831	26,674	34,118
Angler days.....	3	200	627	1,349	3,113	3,051	3,968	4,137	5,901	6,555	3,623	4,038	3,316	4,100	2,768	2,995	3,161	3,484	2,625	3,761	4,065
Anglers.....	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†

† Not available until 1960.

APPENDIX 7
Partyboat Catch and Effort for Sausalito, San Rafael and Tiburon, 1947-1967

Species	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Salmon-----	1,410	2,686	6,457	13,091	25,103	32,874	35,120	38,976	33,832	27,894	11,891	16,100	18,114	12,091	14,751	29,548	26,564	30,175	16,996	23,814	28,007
Striped bass-----	659	70	2,003	1,375	1,216	2,616	3,464	3,263	1,030	2,106	6,630	43,546	1,264	6,441	6,200	3,925	4,007	1,467	1,011	1,136	1,478
Rockfishes-----	1	14	107	69	166	166	246	198	17	289	180	323	78	11	32	49	80	85	90	164	30
Misc. flatfishes-----	14	10	38	18	51	160	321	330	259	378	1,240	1,416	311	73	196	100	209	351	1,551	3,725	390
Lingcod-----	2	1	2	123	4	94	132	36	27	37	310	237	65	1	7	21	20	46	307	300	87
Cabezon-----																					
Jack mackerel-----																					
California halibut-----	1			11	10	38	--	141	10	107	94	14	--	33	216	164	505	565	148	140	119
White croaker-----		5	62	6	20	137	176	21	74	171	36	527	62	148	54	101	279	85	115	50	140
Miscellaneous-----	7	17	7	56	167	121	169	211	134	294	234	338	888	205	14	43	130	33	65	116	254
Total-----	2,094	2,789	8,583	14,792	26,641	36,206	39,773	43,246	35,412	31,274	20,619	65,919	27,894	23,301	25,114	38,237	36,256	36,073	51,140	71,892	46,627
Angler days-----	1,162	1,631	4,808	9,319	14,455	21,523	22,706	24,619	22,034	23,178	12,099	13,493	15,418	13,940	16,426	--	--	--	--	--	--
Anglers-----	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	19,270	20,570	22,672	18,999	23,757	24,557

* The ocean and bay catch of striped bass was not included with the marine catch until 1960. In 1964, striped bass catches from the Sacramento delta area were incorporated into the annual reports.
† Not available until 1960.

APPENDIX 8
Partyboat Catch and Effort for Richmond, 1947-1967

Species	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Salmon.....	683	597	984	515	527	861	1,312	702	815	440	313	281	213	51	1,818	1,088	1,889	2,358	1,359	1,441	7
Striped bass*	--	--	--	--	--	--	--	--	--	440	--	--	--	2,384	7,193	8,841	23,372	7,874	2,108	12,974	619
Rockfishes.....	113	411	434	62	32	349	354	162	130	219	49	937	619	20	4,175	17,706	26,287	4,933	2,169	4,959	327
Misc. flatfishes.....	68	--	--	--	3	24	--	88	7	11	--	--	3	--	31	112	68	116	246	29	562
Lingcod.....	21	--	2	--	--	20	56	26	13	67	92	45	24	2	439	1,885	2,922	706	146	201	--
Cabezon.....	--	--	--	--	--	143	1	1	3	9	9	6	9	--	21	257	497	106	68	33	5
Jack mackerel.....	--	--	--	--	--	--	3	5	13	1	--	56	4	29	189	331	824	123	77	13	--
California halibut.....	1	2	--	--	--	2	--	1	--	--	6	--	--	--	15	135	596	600	27	93	36
Sturgeon.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	3	36	16	377
Miscellaneous.....	191	1	--	--	--	27	1	46	4	11	--	--	8	--	119	74	39	50	155	9	1
Total.....	1,077	1,011	1,420	578	562	1,426	1,727	1,031	985	758	469	1,327	880	2,386	14,000	30,229	56,495	16,869	6,421	19,768	1,939
Angler days.....	638	588	998	381	366	790	983	835	643	570	263	214	342	1,262	6,156	--	--	--	--	--	--
Anglers.....	†	†	†	†	†	†	†	†	†	†	†	†	†	†	1,268	6,817	14,593	8,589	4,145	8,928	1,347

* The ocean and bay catch of striped bass was not included with the marine catch until 1960. In 1964, striped bass catches from the Sacramento delta area were incorporated into the annual reports.
† Not available until 1960.

APPENDIX 9 Partyboat Catch and Effort for Crockett, Rodeo and Vallejo, 1947-1967

Species	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Striped bass*	--	--	--	--	--	213	--	--	--	--	--	--	--	1,915	765	364	2,722	9,010	5,389	13,075	4,327
Salmon	25	5	--	--	14	--	10	99	22	11	--	61	4	32	5	2	29	13	268	45	7
Misc. flatfishes	6	--	--	--	3	--	--	140	483	181	--	17	63	22	351	59	1	1,610	2,460	4,031	6,640
Rockfishes	--	--	--	--	--	--	--	2	19	--	--	361	63	75	13	1	301	213	4,684	332	--
Miscellaneous	--	--	--	--	--	--	--	--	97	18	--	121	--	27	98	51	653	496	517	87	125
Sturgeon	--	--	--	--	--	--	--	21	--	--	--	--	--	--	--	--	--	828	1,580	1,830	1,774
Total	31	5	--	--	17	213	10	262	621	210	--	560	135	2,071	1,232	477	3,706	12,170	14,908	19,400	12,873
Angler days	29	27	--	--	19	159	7	1,035	909	326	--	166	97	1,192	551	--	--	13,484	--	--	--
Anglers	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	230	1,377	--	15,119	22,779	18,468

* The ocean and bay catch of striped bass was not included with the marine catch until 1960. In 1964, striped bass catches from the Sacramento delta area were incorporated into the annual reports.

† Not available until 1960.

APPENDIX 10

Partyboat Catch and Effort for Bethel Island, Isleton, Pittsburg, Franks Tract, Martinez, Port Costa and Antioch, 1947-1967

Species	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Striped bass*	--	--	--	--	--	45	--	--	--	--	--	--	--	--	--	--	--	353	192	211	169
Salmon	--	--	53	--	--	--	--	14	--	--	--	--	--	--	--	--	--	--	--	--	--
Misc. flatfishes	--	--	--	--	--	--	--	181	79	--	--	--	--	--	--	--	--	--	--	--	--
Miscellaneous	74	--	--	--	--	--	--	6	--	--	--	--	--	--	--	--	--	1	23	--	63
Total	74	--	53	--	--	45	--	201	79	--	--	--	--	--	--	--	--	354	215	211	232
Angler days	17	--	82	--	--	30	--	229	116	--	--	--	--	--	--	--	--	--	--	--	--
Anglers	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	332	189	--	177

Partyboats from these ports seldom fished for marine species.

* The ocean and bay catch of striped bass was not included with the marine catch until 1960. In 1964, striped bass catches from the Sacramento delta area were incorporated into the annual reports.

† Not available until 1960.

APPENDIX 11
Partyboat Catch and Effort for Oakland, Berkeley, Alameda, and Redwood City, 1947-1967

Species	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Salmon.....	480	1,198	5,919	16,182	22,300	21,331	23,307	28,547	24,733	16,711	6,645	13,125	14,065	7,845	7,206	18,887	15,768	17,655	9,789	11,715	12,315
Striped bass*	--	--	--	--	23	1	--	--	--	--	--	--	--	12,942	16,343	16,108	15,597	10,024	4,944	12,133	9,695
Rockfishes.....	15	469	1,816	1,752	3,653	2,066	3,054	2,502	613	1,077	970	33,479	16,411	3,680	4,175	5,626	6,120	5,643	17,032	18,406	28,141
Misc. flatfishes.....	--	--	84	53	106	79	73	99	17	107	57	76	65	16	19	23	46	101	150	404	326
Lingcod.....	39	62	9	28	187	105	327	398	170	376	384	1,106	834	136	254	334	353	471	1,363	721	1,020
Cabezon.....	--	--	3	2	128	47	48	182	25	15	13	80	100	37	68	93	107	71	664	124	335
White croaker.....	--	--	4	24	257	85	29	40	51	184	18	38	120	50	26	102	362	89	586	146	467
Sablefish.....	2	--	--	--	--	30	59	5	--	2	--	--	--	--	--	--	2	--	--	5	1
Calif. halibut.....	2	2	--	23	18	30	--	54	--	27	14	35	--	30	91	110	443	1,408	301	787	274
Miscellaneous.....	31	41	100	130	200	84	141	198	111	36	43	3,424	965	1,812	585	1,854	1,509	391	1,455	453	578
Total.....	570	1,772	7,935	18,194	26,882	23,858	27,008	32,025	25,724	18,535	8,144	50,361	32,560	26,548	28,767	43,137	40,307	35,853	36,284	44,894	53,152
Angler days.....	601	1,879	5,894	14,228	15,950	16,508	17,273	19,867	18,780	14,215	7,028	11,647	15,049	13,906	14,981	--	21,076	21,946	15,675	--	--
Anglers.....	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	18,908	21,076	--	--	20,449	19,896

* The ocean and bay catch of striped bass was not included with the marine catch until 1960. In 1964, striped bass catches from the Sacramento delta area were incorporated into the annual reports.

† Not available until 1960.

APPENDIX 12
Partyboat Catch and Effort for San Francisco, 1947-1967

Species	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Salmon.....	1,891	6,445	8,711	25,792	20,545	24,507	25,903	31,982	28,207	18,303	6,698	12,638	15,565	10,103	9,985	24,698	18,782	26,826	16,851	25,163	31,001
Rockfishes.....	559	127	2,268	1,731	1,930	1,154	1,804	2,187	769	1,328	997	8,328	2,208	1,897	1,484	1,646	1,060	623	4,193	6,418	6,843
Striped bass*.....	---	---	---	---	37	23	---	---	---	---	---	---	---	7,272	11,856	10,285	12,553	5,429	2,834	5,335	7,505
Misc. flatfishes.....	1	1	---	233	44	75	187	374	19	52	34	18	29	8	10	16	43	76	43	117	66
Lingcod.....	4	2	18	36	15	67	128	172	207	137	434	366	101	98	177	120	72	157	327	374	473
Cabezon.....	1	---	2	9	6	14	154	218	13	18	17	82	7	15	33	15	18	26	100	43	226
Calif. halibut.....	6	7	---	19	11	45	13	78	3	26	12	2	1	17	58	71	284	481	226	245	217
White croaker.....	41	---	11	3	49	151	92	22	21	113	1	37	97	56	89	124	100	193	363	174	663
Miscellaneous.....	2	8	36	145	57	124	75	151	57	53	106	3,011	1,423	2,405	1,193	2,096	1,958	432	1,599	1,286	1,081
Total.....	2,505	6,590	11,046	27,968	22,694	26,160	28,356	35,184	29,296	20,030	8,299	24,482	19,431	21,871	24,885	39,071	35,170	34,243	26,536	39,155	48,075
Angler days.....	1,426	5,053	7,057	16,914	12,875	16,961	16,452	20,924	18,405	15,137	6,833	9,493	13,831	12,315	14,248	18,231	18,888	23,245	18,189	27,016	31,011
Anglers.....	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†

* The ocean and bay catch of striped bass was not included with the marine catch until 1960. In 1964, striped bass catches from the Sacramento delta area were incorporated into the annual reports.
† Not available until 1960.

APPENDIX 13
Partyboat Catch and Effort for Princeton and Half Moon Bay, 1947-1967

Species	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Rockfishes-----	4,128	58,581	64,542	135,284	117,009	105,669	111,987	131,868	140,157	164,492	93,863	147,244	145,261	119,275	77,010	72,601	98,531	64,255	114,643	101,976	130,042
Lingcod-----	2,148	2,489	4,503	4,786	5,702	4,465	3,591	4,518	3,432	3,347	4,461	4,044	5,704	5,887	7,364	4,708	3,920	3,426	3,960	2,927	3,921
Cabezon-----	637	407	772	1,186	1,359	1,797	2,560	1,401	324	1,019	1,048	681	395	206	530	313	634	656	1,097	621	401
Misc. flatfish-----	28	260	1,642	3,873	3,500	3,100	2,391	1,314	3,765	3,843	414	112	121	58	91	130	191	1,498	194	399	588
Salmon-----	104	109	337	216	112	388	136	280	794	295	59	44	72	58	66	72	48	67	34	29	57
Calif. halibut-----	16	--	16	17	15	66	15	6	31	9	--	--	--	4	3	14	14	13	70	102	11
Jack mackerel-----	--	--	--	--	--	--	--	--	12	--	--	654	183	73	94	42	41	181	47	47	2
White croaker-----	61	183	890	498	--	390	410	239	265	320	11	11	--	52	115	133	322	52	210	2,187	301
Sablefish-----	--	855	3	--	1	--	1,171	--	40	--	--	--	--	--	--	--	--	--	406	10	--
Miscellaneous-----	18	83	200	442	1,943	491	231	121	484	223	40	18	952	14	--	3	6	209	26	243	21
Total-----	7,140	62,967	72,905	146,302	129,641	116,456	122,492	139,747	149,304	173,548	99,896	152,797	152,692	125,624	85,276	78,181	103,707	70,357	120,687	108,541	135,344
Angler days-----	936	4,862	8,350	15,855	13,078	15,265	16,367	18,758	16,519	17,847	9,782	9,130	13,817	15,627	12,035	--	--	--	--	--	--
Anglers-----	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	8,933	10,450	8,306	10,355	10,490	14,162

† Not available until 1960.

APPENDIX 14
Partyboat Catch and Effort for Santa Cruz and Capitola, 1947-1967

Species	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Rockfishes	62,222	122,041	164,240	113,242	156,493	96,722	76,452	78,879	110,801	87,538	112,525	132,504	105,350	103,887	63,474	72,622	26,822	70,363	48,168	83,302	72,775
Lingcod	10,195	9,263	7,958	5,702	6,877	4,404	3,894	5,060	4,970	5,817	7,227	7,227	3,449	4,240	2,724	3,828	1,931	1,881	2,016	3,207	2,837
Misc. flatfish	985	1,829	1,768	580	891	570	494	249	422	807	405	104	75	240	419	648	147	1,855	577	2,920	1,179
Sablefish	1,626	1,882	614	825	1,430	1,561	706	700	300	3,910	882	849	553	196	9	460	299	3,815	7,205	10,460	3,676
Cabezon	211	43	85	26	16	21	106	63	2,012	1,357	2,750	1,053	187	509	168	267	408	308	326	471	223
White croaker	6,445	3,338	--	11,771	8,574	13,842	3,303	1,416	1,092	2,003	1,612	918	1,877	331	645	1,670	233	588	261	141	793
Calif. halibut	117	35	6	1	6	3	2	1	2	9	11	--	--	1	150	170	--	355	--	--	165
Jack mackerel	--	--	3	1	1	1	1	1	5	72	201	5	192	96	80	242	--	488	127	82	32
Kelp greenling	2	5	--	--	153	151	103	27	95	1,988	86	33	--	1	--	--	--	--	--	2	--
White seabass	--	1	--	--	1	803	456	162	1	1	13	59	12	--	--	--	--	--	1	--	--
Miscellaneous	176	459	23,525	969	453	--	--	--	47	65	234	434	892	80	13	--	--	89	15	62	56
Total	81,979	138,896	198,203	133,177	174,895	118,128	85,523	86,562	119,814	108,760	125,760	143,825	112,917	109,569	68,134	81,247	29,940	79,751	58,669	100,649	81,738
Angler days	20,728	18,869	18,851	14,239	20,667	15,367	13,192	12,877	16,084	18,756	17,677	13,538	10,317	11,625	8,376	9,651	4,531	8,816	6,755	11,937	--
Anglers	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	11,347

† Not available until 1960.

APPENDIX 15
Partyboat Catch and Effort for Moss Landing, 1947-1967

Species	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Salmon.....	--	8	2,943	1	2	--	5	757	9,805	15,439	3,996	2,987	1,962	904	2,061	2,778	373	152	31	5	176
Misc. flatfish.....	4,580	104	3,315	6,410	393	--	133	392	165	190	494	105	32	--	10	50	1	--	--	--	--
Rockfish.....	54	429	--	4,046	--	--	495	557	202	461	578	2,369	572	84	66	3	156	--	--	62	--
Lingcod.....	92	31	--	32	--	--	120	3	5	10	42	27	48	23	8	6	12	--	--	--	--
Sablefish.....	4,065	--	--	--	--	--	--	--	300	18	--	--	--	--	--	--	--	--	--	--	--
White croaker.....	16	8	--	488	115	--	15	20	12	8	9	--	--	--	--	--	--	--	--	--	--
California halibut.....	84	--	--	3	--	--	--	--	21	26	3	2	--	--	--	1	--	6	--	9	--
Albacore.....	--	--	--	--	--	--	--	--	--	95	47	--	6	--	--	--	16	--	--	18	218
Miscellaneous.....	34	16	3	179	--	--	11	9	9	15	4	352	5	7	10	1	18	2	--	116	64
Total.....	8,925	596	6,261	11,159	510	--	839	1,738	10,519	16,262	5,173	4,842	2,626	1,018	2,164	2,847	576	190	31	210	468
Angler days.....	249	94	364	556	10	--	71	378	5,443	8,993	4,000	1,553	1,654	1,036	1,678	--	--	--	--	--	--
Anglers.....	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	1,647	525	217	83	71	294

† Not available until 1960.

APPENDIX 16
Partyboat Catch and Effort for Monterey and Pacific Grove, 1947-1967

Species	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Rockfishes-----	40,081	43,820	56,072	65,501	67,794	65,913	47,447	65,195	59,633	64,515	61,408	137,487	146,521	143,320	94,492	116,313	153,282	85,514	151,618	181,706	197,257
Lingcod-----	4,173	2,491	1,936	1,620	1,358	1,333	934	1,468	1,043	3,902	3,394	4,287	3,774	3,981	1,931	2,723	2,588	1,965	4,338	6,681	9,306
Misc. flatfish-----	3,076	3,656	1,070	1,514	1,301	4,436	33,544	4,155	1,218	703	1,008	361	294		314	356	507	805	747	1,215	1,588
Sablefish-----	5,006	2,685	--	1	136	--	2,422	1,432	785	4		--	--	--	--	--	--	100	34	34	--
Cabezon-----	585	1,139	842	1,008	374	223	360	126	172	2,090	657	116	147	79	9	80	344	92	114	38	51
Salmon-----	185	16	12	19	40	227	1,293	4,811	11,182	15,925	4,888	3,118	1,991	950	2,733	1,074	311	923	116	81	2,054
California halibut-----	14	4	--	5	--	--	3	16	23	9	45	4	--	--	37	6	16	9	1	12	7
Jack mackerel-----	440	647	1,110	1	8	4	326	178	4,589	8,997	326	1,496	647	1,322	1,140	757	552	1,173	1,623	268	1,677
Pacific albacore-----	--	--	--	5	--	--	1	16	--	--	--	--	--	--	--	--	--	--	92	1,476	384
Miscellaneous-----	462	2,660	387	148	333	209	2,025	283	903	337	659	994	516	1,815	292	301	742	--	556	1,412	261
Total-----	54,022	57,118	61,429	69,522	71,344	72,345	88,355	77,680	79,548	96,482	72,385	147,863	153,890	151,781	100,990	121,698	158,342	90,588	159,239	192,890	212,585
Angler days-----	7,128	5,564	6,301	7,634	8,140	8,777	8,376	11,012	13,725	15,864	10,456	11,030	12,073	10,808	9,733	--	--	--	--	--	--
Anglers-----	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	9,991	10,663	7,761	9,993	15,662	16,223

† Not available until 1960.

APPENDIX 17

Partyboat Catch and Effort for Avila, 1947-1967

Species	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Rockfishes.....	18,331	30,720	39,327	48,207	75,487	80,374	44,278	70,897	115,421	99,653	94,340	155,964	102,865	56,398	47,961	41,479	38,627	30,410	42,038	48,476	27,514
Lingcod.....	2,333	3,713	6,756	6,001	4,959	3,252	6,672	1,146	2,052	2,026	3,811	4,399	2,079	1,646	869	742	908	1,191	939	1,613	895
Cabezon.....	3,586	5,697	4,960	5,424	8,106	2,543	1,120	639	1,420	1,608	1,296	1,041	421	329	395	457	862	1,068	599	1,843	258
Misc. flatfishes.....	58	175	717	948	2,245	1,359	706	1,282	884	1,418	1,641	614	388	236	307	217	231	150	137	318	120
Salmon.....	--	8	23	10	7	3	25	29	51	51	59	348	20	873	997	746	552	2,002	967	353	508
California halibut.....	--	2	30	27	30	3	75	2	1	5	3	6	14	11	66	37	34	8	12	56	2
Kelp greening.....	42	30	38	20	74	42	19	49	149	214	231	153	99	4	--	4	12	6	16	22	5
Jack mackerel.....	21	104	77	110	--	--	--	3	2,425	6,523	110	863	99	13	10	1	8	7	21	5	63
White seabass.....	--	9	174	1	--	--	--	--	--	6,523	131	426	86	3	--	--	1	--	--	--	--
White seabass.....	--	1	--	1	17	--	8	--	--	--	131	426	86	3	--	--	--	--	--	--	--
Miscellaneous.....	124	140	362	192	288	90	302	444	985	2,205	807	607	354	279	109	8	103	43	272	62	23
Total.....	24,465	40,597	52,435	60,920	91,213	87,674	47,197	74,421	123,342	113,703	102,429	164,421	106,150	59,789	50,714	43,691	41,368	34,885	44,970	52,748	29,385
Angler days.....	4,722	7,795	10,764	10,466	13,553	13,439	10,438	9,123	9,260	9,253	9,346	10,315	9,024	6,566	6,945	--	--	--	--	--	--
Anglers.....	†	†	†	†	13,553	†	†	†	†	†	†	†	†	†	6,566	5,855	5,069	5,180	4,337	4,596	4,299

† Not available until 1960.

APPENDIX 19
Partyboat Catch and Effort for Santa Barbara, Goleta and Gaviota, 1947-1967

Species	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Kelp, sand bass---	--	1,105	106	4	164	6,936	6,393	20,152	62,436	34,315	40,432	39,417	26,187	14,626	26,939	40,000	50,869	39,710	30,945	20,441	16,016
Calif. barracuda---	--	--	--	--	--	13	--	--	--	130	4,922	18,016	7,579	1,593	1,144	518	1,013	27	241	102	--
Pacific bonito-----	--	--	--	--	--	--	--	--	--	2	4,432	2,992	4,704	5,735	12,646	13,793	12,571	18,722	13,266	5,115	233
Rockfishes-----	--	2,798	288	4,527	3,627	4,188	2,790	7,448	66,736	93,034	56,242	51,845	26,973	23,588	22,895	24,037	40,591	82,933	44,532	56,391	96,141
California halibut---	--	3	1	80	6	22	41	164	403	194	66	25	116	606	2,767	765	882	2,619	1,989	2,327	1,116
Calif. yellowtail---	--	--	--	--	--	--	--	--	--	--	80	524	5,749	1,108	320	236	145	11	--	336	1
Albacore-----	--	15	--	160	3	--	--	--	--	427	--	--	--	--	1,456	1,579	--	207	--	--	--
Yellowfin tuna-----	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Skipjack tuna-----	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bluefin tuna-----	--	--	--	--	--	--	--	--	--	34	2	1	1	--	2	--	--	--	--	--	--
Pacific mackerel---	--	1,624	129	3	226	84	70	8,115	2,911	627	2,792	4,250	7,000	4,886	10,133	371	118	26	47	759	--
Jack mackerel---	--	--	--	--	--	--	--	8	1	56	117	475	316	33	--	--	5	--	--	--	10
Calif. sheephead---	--	55	18	229	40	64	45	113	1,161	1,490	434	413	292	197	252	255	387	577	129	362	276
Sablefish-----	--	--	--	--	--	--	--	30	30	2,324	927	406	357	332	194	902	1,650	1,469	1,478	880	2,463
Lingcod-----	--	171	--	71	22	72	95	340	1,468	2,324	927	406	357	332	194	902	1,650	1,469	1,478	880	2,463
Misc. flatfish-----	--	41	--	15	65	49	28	18	23	50	17	4	11	13	9	6	3	48	20	3	125
Sculpin-----	--	63	24	225	7	329	190	83	112	247	35	6	36	220	71	12	31	56	46	144	1,234
Cabezon-----	--	--	--	--	--	13	8	167	669	934	317	100	91	31	26	104	144	97	284	193	273
Giant sea bass-----	--	--	--	--	--	--	--	--	--	1	--	--	--	2	4	3	2	69	--	2	--
Salmon-----	--	--	--	--	--	--	--	6	4	13	--	3	--	--	2	--	--	5	2	2	164
White seabass-----	--	62	12	2	--	9	2	6	107	18	29	271	195	300	176	196	524	585	89	379	118
White croaker-----	--	--	--	--	--	98	60	471	101	50	28	--	4	145	--	--	--	--	--	--	--
Hallibout-----	--	--	--	--	--	4	--	--	--	--	--	--	--	--	--	--	--	40	--	--	--
Sargo-----	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ocean whitefish-----	--	295	43	375	115	177	201	487	1,026	1,748	821	878	364	190	234	34	114	57	330	64	40
Miscellaneous-----	--	344	36	13	2	534	309	230	399	364	54	102	3	--	15	2	10	15	1	103	1
Total-----	--	6,666	747	5,704	4,277	12,592	10,232	37,838	137,557	136,057	111,728	119,728	79,978	53,665	79,285	82,810	109,060	147,206	93,399	87,603	118,280
Angler days-----	--	907	210	1,104	582	2,406	2,044	3,752	13,421	17,213	10,258	12,333	10,595	6,150	10,021	--	9,369	--	--	--	--
Anglers-----	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†

† Not available until 1960.

APPENDIX 20

Partyboat Catch and Effort for Ventura and Oxnard, 1947, 1964-1967 *

Species	1947	1964	1965	1966	1967
Kelp-sand bass.....	241	28,719	80,649	124,938	83,031
California barracuda.....	--	1,679	3,802	6,789	515
Pacific bonito.....	--	19,368	13,319	28,969	3,830
Rockfishes.....	100	56,266	157,450	285,828	339,569
California halibut.....	--	1,448	6,971	10,612	4,912
California yellowtail.....	558	601	355	1,843	3
Albacore.....	--	--	20	21	25
Yellowfin tuna.....	--	--	--	--	--
Skipjack tuna.....	--	--	--	--	--
Bluefin tuna.....	--	--	--	--	--
Pacific mackerel.....	19	121	732	1,336	298
Jack mackerel.....	--	118	7	74	9
California sheephead.....	11	1,557	5,140	5,699	6,379
Sablefish.....	--	--	1	--	8
Lingcod.....	11	1,100	1,621	4,469	3,714
Miscellaneous flatfish.....	33	264	1,103	875	939
Sculpin.....	31	1,338	2,950	931	1,609
Cabezon.....	--	37	167	1,459	571
Giant sea bass.....	1	10	10	8	5
Salmon.....	--	1	--	2	1,836
White sea bass.....	27	238	426	244	150
White croaker.....	169	75	--	102	743
Halfmoon.....	--	--	27	--	7
Sargo.....	--	--	2	14	--
Ocean whitefish.....	13	631	538	2,275	2,987
Miscellaneous.....	177	468	432	607	104
Total.....	1,391	114,039	275,722	477,095	451,244
Angler days.....	1,033	--	--	--	--
Anglers.....	†	9,012	24,241	38,829	42,012

* No data, 1948 through 1963.

† Not available until 1960.

APPENDIX 21
Partyboat Catch and Effort for Port Hueneme, 1947-1957

Species	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Kelp, sand bass.....		9,986	31,810	35,570	29,717	69,851	61,017	99,683	79,183	71,526	90,362	63,551	41,105	30,872	52,581	43,373	67,848	55,707	66,676	92,558	92,004
Calif. barracuda.....		34	140	13	3	6	--	361	14	1	8,860	19,555	45,288	5,824	5,448	3,258	5,730	2,204	5,327	8,229	641
Pacific bonito.....		--	--	--	1	1	--	30	--	41	4,699	3,502	24,572	17,312	23,095	10,059	17,484	27,385	19,713	22,641	4,518
Rockfishes.....		11,868	24,736	18,969	5,393	33,476	48,603	74,216	105,696	79,584	91,535	150,172	75,222	62,999	58,401	41,197	52,605	91,777	79,537	133,183	126,820
Calif. halibut.....		1,072	2,569	415	220	1,263	2,320	386	137	191	136	192	247	414	245	974	1,116	1,840	1,344	1,901	724
Calif. yellowtail.....		--	4	--	--	--	--	1	--	2	6	29	6,281	1,606	560	495	1,228	275	223	479	16
Albacore.....		--	3	1	491	123	175	109	--	925	--	--	--	--	1	1,959	2	--	--	--	--
Yellowfin tuna.....		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Skipjack tuna.....		--	--	--	--	--	--	--	--	--	393	--	--	--	6	--	--	--	--	--	--
Bluefin tuna.....		--	--	--	--	--	--	--	1	13	4	--	--	--	461	4	--	--	--	--	--
Pacific mackerel.....		1,456	1,473	307	134	38	234	859	3,734	2,058	2,652	400	95	747	494	604	308	328	196	192	159
Jack mackerel.....		--	9	6	--	--	3	7	28	9	3	178	75	--	--	31	3	--	60	--	--
Calif. sheephead.....		650	969	676	599	3,072	1,288	2,807	3,043	2,684	3,802	3,287	1,388	1,048	1,616	1,491	2,581	1,612	1,761	3,991	2,144
Sablefish.....		--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	1	13	161	81	425
Lingcod.....		--	249	130	32	123	203	921	4,180	1,054	1,163	1,650	557	410	557	392	630	1,759	1,122	1,031	625
Misc. flatfish.....		271	1,937	4,165	95	1,173	5,080	5,215	1,677	2,745	3,197	1,263	1,307	639	618	399	361	668	886	964	655
Sculpin.....		870	1,401	923	416	2,376	3,000	2,080	1,295	1,249	1,160	594	462	1,225	1,650	361	405	1,423	567	1,209	517
Cabezon.....		15	40	28	5	63	39	250	335	205	126	190	31	7	12	34	43	189	73	107	54
Giant sea bass.....		6	3	--	--	1	1	3	--	5	--	--	8	2	2	2	6	8	26	9	3
Salmon.....		--	--	--	--	1	1	1	1	--	--	--	1	--	--	7	--	9	--	--	633
White seabass.....		32	228	12	2	29	147	20	21	8	301	583	107	215	133	496	515	525	230	232	35
White croaker.....		179	424	25	120	140	58	48	8	4	265	--	44	3	--	--	1	145	398	691	160
Hallmoon.....		--	--	2	1	12	2	--	6	20	--	--	63	125	--	--	17	--	39	33	--
Sargo.....		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ocean whitefish.....		998	1,126	792	496	1,231	517	1,674	674	946	1,541	1,060	389	35	242	66	139	208	99	384	511
Miscellaneous.....		451	431	157	255	1,216	695	645	109	655	540	109	95	81	237	240	288	3,133	85	16	421
Total.....		28,149	67,430	62,577	37,593	114,237	123,274	189,214	200,161	163,925	210,745	246,325	197,327	123,565	146,359	105,442	151,311	189,208	178,523	267,931	231,965
Angler days.....		4,373	10,106	11,391	4,833	16,951	18,770	18,389	18,197	19,582	20,908	17,132	18,900	11,799	13,147	10,524	15,303	17,001	15,083	22,062	21,070
Anglers.....		↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑

↑ Not available until 1960.

APPENDIX 22

Partyboat Catch and Effort for Malibu Beach and Paradise Cove, 1947-1967

Species	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Kelp, sand bass	89,717	47,730	83,581	63,454	73,152	47,077	35,431	55,132	12,221	8,697	19,696	46,906	24,195	33,206	42,806	52,650	67,979	51,135	39,329	73,101	55,065
Calif. barracuda	2,720	590	154	89	734	2,622	10	1,128	113	1	20,496	34,434	18,821	13,461	2,285	365	2,175	43	318	7,483	1,629
Pacific bonito	180	8	3	3	1	7	2			4	5,233	9,515	13,496	38,850	24,833	47,364	34,708	39,730	5,248	18,676	7,131
Rockfishes	1,768	21,885	30,743	21,857	16,571	31,971	42,509	62,808	183,553	209,522	46,836	46,512	25,968	78,603	109,454	56,125	57,987	33,319	8,868	50,795	130,170
Calif. halibut	15,084	20,398	14,156	7,183	4,865	4,983	3,568	11,801	5,508	1,304	646	1,990	1,118	4,780	12,866	14,158	17,508	15,883	6,260	9,711	3,356
Calif. yellowtail	--	174	--	1	1	--	--	--	--	--	235	1,320	5,130	571	89	50	14	13	--	663	--
Albacore	--	6	--	1,512	136	2	--	--	370	457	1	--	--	--	59	946	--	--	--	--	--
Yellowfin tuna	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Skipjack tuna	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bluefin tuna	1	--	--	--	--	--	14	--	47	50	--	--	--	2	--	9	1	--	--	--	--
Pacific mackerel	12,701	14,130	12,603	7,493	152	420	1,457	23,057	5,669	10,028	6,904	17,616	13,613	3,781	6,271	1,676	3,297	867	483	3,491	225
Jack mackerel	1,042	18	1,146	--	--	32	7,789	11	62	618	182	1,394	444	1	52	20	37	6	5	136	290
Calif. sheephead	1,018	782	948	474	570	735	210	1,254	463	150	251	1,128	353	170	160	59	262	16	39	177	82
Sablefish	3	3	20	1	--	--	169	426	475	--	--	1	--	--	10	104	209	275	--	--	--
Lingcod	41	214	88	197	60	139	218	1,422	1,037	577	146	166	44	305	178	253	982	127	57	129	75
Misc. flatfish	23	1,731	1,841	1,042	225	489	301	7,660	1,780	935	289	243	178	380	733	401	690	614	849	435	2,119
Southern	1,978	6,317	5,406	3,544	2,830	1,400	601	3,051	1,481	399	223	236	61	357	830	2,566	4,930	6,491	2,234	1,621	2,154
Cabezon	907	706	1,330	871	608	327	167	2,646	802	600	508	611	92	33	96	392	1,852	600	327	762	335
Giant sea bass	10	4	4	3	1	1	--	2	2	--	1	1	1	9	19	75	82	32	21	39	5
Salmon	1	--	--	--	--	--	--	3	1	1	--	3	--	3	--	--	2	11	--	1	10
White seabass	171	122	46	23	982	375	2	162	7	1	357	434	117	46	131	173	64	22	4	90	19
White croaker	14,203	14,131	22,045	15,884	7,015	8,430	10,170	18,624	3,530	2,297	460	831	194	546	445	5	1,714	722	412	245	70
Halmoon	--	--	--	--	--	--	--	--	--	--	--	37	--	--	--	--	--	--	3	1	3
Sargo	--	--	--	--	--	--	--	--	--	--	--	--	2	--	--	--	--	--	--	1	--
Ocean whitefish	222	457	43	57	25	354	19	51	278	71	43	243	38	283	196	149	105	4	34	140	15
Miscellaneous	1,879	1,508	4,131	1,688	692	831	755	1,128	2,014	1,088	589	1,181	364	271	1,705	397	3,177	961	7	154	4
Marlin	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total	144,336	130,687	178,353	125,377	108,620	101,095	103,392	190,366	199,413	236,800	103,096	164,802	104,230	175,656	203,222	177,937	197,775	150,871	64,499	167,859	202,758
Angler days	18,940	18,008	18,554	17,819	18,002	11,110	11,750	21,016	21,951	18,564	13,217	22,450	12,261	13,380	20,627	--	--	--	--	--	--
Anglers	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

† Not available until 1960.

APPENDIX 23

† Not available until 1960.

APPENDIX 24

Partyboat Catch and Effort for Redondo Beach, Playa Del Rey and Hermosa Beach, 1947-1967

Species	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Kelp, sand bass....	16,885	15,181	37,768	15,601	22,118	15,688	13,471	23,475	5,709	11,394	28,419	15,815	8,389	20,111	46,185	46,032	59,544	81,341	136,645	86,671	71,121
Calif. barracuda....	23,388	2,841	3,164	366	1,746	14,417	693	7,571	1,219	1,079	27,298	29,351	50,235	70,249	13,213	4,395	18,333	3,792	114,251	4,782	
Pacific bonito.....	4,455	1,909	151	269	2,873	4,051	5	235	5	1,721	18,093	24,669	50,524	97,635	108,672	65,115	82,104	116,910	104,554	67,633	45,381
Rockfishes.....	2,505	3,830	13,599	64,745	54,366	27,598	18,262	71,914	165,929	220,106	128,706	56,523	24,169	20,402	18,325	44,081	31,207	54,108	101,583	129,024	187,096
Calif. halibut.....	4,536	6,165	4,614	3,356	1,820	3,305	2,377	1,996	1,489	514	626	354	1,165	1,395	6,564	4,938	1,529	4,371	6,275	1,541	907
Calif. yellowtail....	21	19	31	10	39	93	--	2	--	1	1,593	716	5,158	9,995	2,130	309	1,403	261	204	922	77
Albacore.....	--	2	4	2,775	760	493	68	--	124	307	51	52	--	--	814	2,161	609	623	914	157	697
Yellowfin tuna.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--
Skipjack tuna.....	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	50	--
Bluefin tuna.....	--	--	3	--	10	--	18	30	1	178	55	1	--	--	--	14	7	1	--	99	516
Pacific mackerel....	13,285	6,393	7,982	4,145	2,426	1,189	139	9,119	4,906	2,888	8,313	2,207	1,136	665	5,621	2,794	5,724	6,371	19,731	21,917	11,554
Jack mackerel.....	10	--	6	--	--	155	6,006	1,332	5,311	62	243	1,774	334	61	2	33	5	41	16,798	7,516	571
Calif. sheephead....	252	243	368	197	1,056	506	29	99	48	33	23	102	43	95	565	760	1,285	2,875	3,540	3,996	2,997
Sablefish.....	--	--	--	--	125	--	999	--	21	25	35	--	--	--	25	54	556	410	591	11,004	2,211
Lingcod.....	163	105	170	609	216	45	15	221	71	55	35	31	21	16	43	--	11	59	127	120	71
Misc. flatfish.....	2	461	438	1,177	25,246	2,054	1,220	363	2,336	221	216	248	116	69	423	634	322	165	672	1,671	1,042
Sculpin.....	893	2,265	3,043	3,105	3,906	2,670	1,391	795	1,040	677	520	1,503	2,334	1,293	2,249	2,467	4,556	7,010	6,509	4,530	4,643
Cabezon.....	27	104	160	80	101	131	366	452	635	884	702	319	47	14	69	113	115	158	109	90	88
Giant sea bass.....	4	3	1	1	4	1	--	--	1	--	1	2	--	1	2	8	--	2	10	17	6
Salmon.....	1	--	1	2	--	--	--	--	--	12	--	1	--	--	--	--	1	1	1	2	3
White seabass.....	76	18	35	78	784	625	12	22	27	5	28	133	77	168	54	34	434	381	112	271	31
White croaker.....	702	1,949	2,465	2,064	1,650	669	974	23	160	544	--	2	21	210	667	709	1,064	320	658	52	108
Halibut.....	--	--	--	--	--	--	--	--	--	--	--	--	15	132	1,257	648	433	6,379	22,362	11,176	4,380
Sargo.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ocean whitefish.....	21	16	419	339	354	1,043	17	--	92	251	43	97	132	431	1,589	1,463	673	789	1,274	1,995	1,418
Miscellaneous.....	142	494	525	673	411	276	395	59	81	175	39	235	74	24	1,072	60	46	118	692	47	86
Total.....	67,368	41,999	74,948	99,592	120,011	75,009	46,457	117,745	189,241	240,632	215,006	134,125	143,990	222,967	207,342	176,903	209,963	286,494	435,341	465,041	339,827
Angler days.....	12,450	7,940	10,953	15,375	17,570	12,677	11,262	17,609	18,880	17,257	22,451	17,527	17,047	23,793	25,015	--	--	--	--	--	--
Anglers.....	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	30,624	34,314	37,405	53,473	60,765	61,679

† Not available until 1960.

APPENDIX 25
Partyboat Catch and Effort for San Pedro, 1947-1967

Species	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Kelp, sand bass...	156,699	127,421	98,269	66,631	126,343	56,161	70,194	71,529	33,504	51,342	68,125	84,867	69,070	71,721	58,349	86,507	137,873	134,646	154,187	167,454	112,923
Calif. barracuda...	94,788	45,329	44,532	20,023	19,213	17,511	4,380	10,742	2,295	955	37,508	90,852	30,684	93,929	32,450	31,222	33,009	24,003	21,380	83,165	22,728
Pacific bonito...	1,201	964	16	35	1,027	405	508	609	26	427	18,259	47,995	86,068	136,827	56,176	38,078	76,299	123,888	67,100	49,808	13,145
Rockfishes...	3,657	6,201	11,557	8,167	7,069	7,043	8,867	15,861	12,407	8,105	8,399	3,337	4,035	2,568	4,233	3,560	4,918	6,556	5,656	12,939	23,038
Calif. halibut...	4,457	9,837	3,808	2,586	1,900	1,785	936	744	783	608	796	903	1,558	4,104	2,978	8,093	4,981	6,706	5,057	2,631	3,804
Calif. yellowtail...	113	399	435	58	473	1,545	398	319	221	204	13,283	6,086	47,161	35,044	6,481	1,821	4,327	4,141	804	3,082	506
Albacore...	4,702	3,676	2,259	19,819	9,401	23,711	3,598	2,180	7,949	8,344	6,064	155	---	8,367	28,006	34,490	14,700	7,624	8,353	3,408	6,689
Yellowfin tuna...	19	1	---	---	---	5	---	---	---	---	5	10	3	132	5	---	---	---	---	---	---
Skipjack tuna...	87	1	---	---	---	18	1	---	---	---	347	31	197	14	---	---	67	18	---	17	---
Bluefin tuna...	583	19	267	5	1,027	18	173	215	2,035	7,348	813	400	303	5	73	697	178	51	1	92	77
Pacific mackerel...	17,817	30,969	5,357	6,099	5,964	10,593	4,931	12,310	6,711	4,864	14,650	3,164	2,779	16,601	9,735	19,725	29,284	16,735	33,830	26,870	4,187
Jack mackerel...	253	246	33	---	5	619	3,667	1,018	510	121	1,318	383	240	---	733	90	229	424	44	2,179	724
Calif. sheephead...	7,428	6,973	5,639	5,128	7,377	3,395	2,330	1,818	1,442	2,198	2,497	2,047	4,144	2,476	2,799	3,862	3,372	6,995	6,334	8,100	10,250
Sablefish...	30	---	---	2	6	---	62	524	3,203	253	53	---	---	13	---	---	---	---	21	---	---
Lingcod...	128	306	63	47	28	32	109	56	60	60	114	23	121	45	46	26	30	7	9	29	86
Misc. flatfish...	524	994	981	750	994	898	2,509	2,636	1,451	635	1,119	590	273	845	855	128	233	227	219	188	464
Sculpin...	4,416	7,263	5,503	6,079	4,587	3,644	981	893	923	1,156	1,371	608	879	1,340	2,283	3,913	3,379	6,112	8,120	5,554	5,852
Cabezon...	66	134	89	191	200	68	89	191	200	152	383	398	86	114	49	92	65	183	185	57	113
Giant sea bass...	7	12	20	25	20	6	14	7	6	4	12	13	9	18	9	32	36	50	16	15	16
Salmon...	---	---	1	---	---	---	---	---	---	---	1	---	---	1	---	---	2	---	6	3	19
White seabass...	2,926	1,662	4,147	5,305	2,854	1,448	720	85	82	67	775	725	392	1,129	465	425	373	397	400	311	64
Marlin...	6	---	---	1	---	---	---	---	1	---	1	---	---	---	---	1	---	2	---	2	---
White croaker...	1,033	2,672	1,487	1,079	770	247	657	587	175	91	45	1,373	64	677	95	428	498	480	858	102	610
Halfmoon...	---	---	28	5	37	4	---	103	583	345	670	667	346	357	185	251	2,834	3,022	12,210	3,794	15,478
Sargo...	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	122	805	229	---	210
Ocean whitefish...	2,043	2,870	1,398	1,524	1,680	552	231	416	430	210	131	264	597	283	204	1,126	791	807	2,217	1,702	2,251
Miscellaneous...	2,513	5,589	1,441	640	831	703	1,079	432	651	93	1,571	655	371	419	301	1,559	235	285	210	191	469
Total...	305,496	256,545	187,301	144,078	192,550	130,335	106,434	123,275	75,647	87,638	178,218	245,644	349,304	377,930	206,481	242,253	317,712	344,145	327,440	371,663	223,703
Angler days...	41,206	48,485	44,850	45,803	46,245	39,338	24,796	21,806	20,417	24,964	34,905	38,342	46,612	48,848	40,036	---	---	---	---	---	---
Anglers...	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

† Not available until 1960.

APPENDIX 26

Partyboat Catch and Effort for Wilmington and Los Angeles, 1947-1967

Species	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Kelp, sand bass....	3,401	5,827	9,123	55,239	43,239	14,623	11,206	15,621	4,932	3,173	3,351	3,100	1,649	1,863	888	2,619	6,029	559	214	533	592
Calif. barracuda....	5,819	5,052	5,577	18,487	10,518	9,278	562	3,119	131	11	4,361	3,954	21,240	3,992	1,451	836	2,708	138	374	1,037	250
Pacific bonito.....	565	156	4	11	1,337	137	30	239	4	7	2,710	3,842	8,465	5,464	3,022	1,471	2,821	1,715	463	698	578
Rockfishes.....	112	131	238	692	1,506	1,580	1,600	2,762	3,724	3,332	2,233	1,872	1,388	288	1,753	2,960	1,135	1,552	2,324	1,546	2,072
Calif. halibut.....	911	4,498	1,890	2,739	1,170	466	1,227	1,217	475	122	113	87	295	278	496	723	464	271	94	51	146
Calif. yellowtail....	2	52	183	130	279	544	55	73	5	4	296	161	3,597	1,227	28	15	88	14	--	11	1
Albacore.....	168	423	311	4,830	5,333	14,704	1,407	770	2,681	3,239	859	--	--	--	348	1,559	259	3	1	--	27
Yellowfin tuna.....	2	--	--	1	--	3	2	--	--	1	--	--	--	--	--	--	--	--	--	--	--
Skipjack tuna.....	18	2	--	1	2	--	--	--	--	--	3	40	--	--	--	--	--	--	--	--	--
Bluefin tuna.....	11	4	92	1	524	6	17	51	193	2,153	212	25	98	--	--	2	1	--	--	--	--
Pac. mackerel.....	4,270	4,991	2,481	3,596	3,929	5,486	1,512	8,446	2,055	1,224	1,240	342	241	232	673	1,089	169	50	88	301	18
Jack mackerel.....	106	26	60	27	32	48	1,566	177	69	37	48	2	153	--	254	--	--	4	15	--	--
Calif. sheepshead..	157	365	406	763	1,153	829	681	729	419	308	525	173	161	137	44	88	153	18	11	16	61
Sablefish.....	--	--	--	--	--	--	--	633	491	54	1	--	--	--	--	--	20	--	--	--	--
Lingcod.....	1	9	17	44	11	8	24	124	23	10	66	68	12	3	5	17	1	--	13	5	5
Misc. flatfish.....	9	39	35	301	280	1,283	1,214	1,049	881	388	393	213	314	105	274	23	76	55	166	122	411
Sculpin.....	177	1,004	702	1,392	1,528	1,679	439	406	218	103	107	69	94	76	149	166	298	241	61	216	232
Cabezon.....	4	6	3	22	35	105	41	66	48	56	144	25	8	6	--	7	1	--	1	--	6
Giant sea bass.....	--	1	3	13	8	8	5	1	4	--	--	1	--	--	--	--	1	--	--	--	--
Salmon.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1
White seabass.....	128	403	2,114	2,343	651	1,077	248	93	47	8	98	33	51	53	38	6	6	--	--	--	--
Marlin.....	--	--	--	--	--	8	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--
White croaker.....	132	648	527	1,155	1,393	563	461	232	92	158	23	23	65	--	--	--	33	--	--	--	--
Halibut.....	--	--	15	--	2	16	--	142	32	--	--	76	--	--	20	--	--	--	14	2	--
Sargo.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ocean whitefish.....	2	69	30	747	203	135	62	181	52	116	66	17	47	--	--	5	--	14	1	--	2
Miscellaneous.....	106	374	140	252	469	803	467	141	118	161	325	43	230	31	379	295	270	215	82	74	128
Total.....	16,091	24,080	23,952	92,785	73,602	53,359	22,826	36,272	16,694	14,665	17,146	14,126	38,151	13,755	9,832	11,876	14,547	4,832	3,910	4,599	4,528
Angler days.....	3,406	6,922	8,037	18,950	21,966	19,168	7,352	7,479	4,610	6,192	4,905	2,703	5,632	2,198	1,736	--	--	666	--	588	--
Anglers.....	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

† Not available until 1960.

APPENDIX 27
Partyboat Catch and Effort for Long Beach, Seal Beach, Huntington Beach, Sunset Beach, Avalon, Los Alamitos and Terminal Island, 1947-1967

Species	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Kelp, sand bass...	139,254	117,462	189,164	114,218	131,486	97,252	215,791	259,584	132,351	106,994	137,592	140,250	80,613	103,550	139,319	198,054	323,984	216,645	253,827	271,599	204,469
Calif. barracuda...	202,684	95,473	117,519	91,824	86,664	90,667	28,613	63,279	17,551	4,269	125,913	212,366	389,251	246,036	101,798	92,806	178,893	56,755	99,181	216,539	106,681
Pacific bonito...	8,680	1,608	51	48	1,479	1,091	1,102	6,070	418	1,800	56,002	119,502	175,639	291,933	166,193	162,590	180,458	229,722	148,784	114,868	54,905
Rockfishes.....	17,420	22,675	25,226	28,912	40,477	81,455	104,298	176,666	358,212	371,249	215,969	84,496	49,144	31,534	54,009	92,733	75,063	91,968	103,396	90,183	74,140
Calif. halibut.....	21,357	38,042	16,741	17,937	13,285	5,263	3,765	13,686	3,963	2,173	2,101	3,854	8,728	12,567	33,933	39,721	36,191	51,276	34,466	23,020	18,684
Calif. yellowtail...	303	462	2,010	219	881	7,647	2,550	3,785	1,859	518	25,049	16,241	71,992	50,209	5,182	2,155	4,956	4,280	1,501	5,598	450
Albacore.....	1,067	2,161	1,902	22,951	17,396	47,866	9,099	6,485	21,507	19,091	9,617	10	--	16,993	52,704	61,740	30,752	10,160	10,028	4,815	4,067
Yellowfin tuna....	5	--	3	6	8	14	--	--	--	22	2	2	--	697	2	1	9	--	--	1	222
Skipjack tuna.....	118	17	--	8	51	1	39	--	7	--	158	223	110	144	--	35	5,955	938	21	414	63
Bluefin tuna.....	572	10	1,505	18	4,384	28	885	464	4,211	16,770	2,071	226	268	48	302	814	370	51	6	154	120
Pac. mackerel....	20,234	27,845	21,705	20,207	19,653	40,704	24,462	112,756	75,809	44,494	84,224	35,973	38,603	28,833	45,700	40,798	56,869	26,468	41,661	53,367	12,388
Jack mackerel....	330	752	60	355	69	1,273	34,895	4,081	5,482	1,645	2,198	3,247	3,505	60	4,364	267	67	422	923	2,753	3,229
Calif. sheephead..	1,936	3,829	3,326	3,451	5,760	5,045	9,390	8,929	4,919	5,121	4,508	5,636	6,441	4,244	6,154	3,333	4,333	6,650	16,537	14,925	11,165
Sablefish.....	--	--	17	29	6	--	899	18,305	9,125	632	207	37	9	--	12	243	2	19	8	--	--
Lingcod.....	153	151	193	101	42	102	54	285	726	977	487	210	491	298	343	355	343	133	212	217	197
Misc. flatfish....	620	1,721	1,768	1,798	3,098	8,855	6,847	10,357	12,838	2,960	1,887	1,044	830	535	797	1,031	621	1,818	2,394	2,365	3,137
Sculpin.....	1,728	6,487	5,503	17,258	8,390	10,810	8,142	13,472	11,258	15,655	5,401	5,008	3,866	5,027	9,365	10,778	16,877	13,739	22,330	17,490	13,878
Cabezon.....	53	174	148	270	288	616	1,675	2,910	2,614	3,213	2,216	1,460	457	241	163	123	554	192	591	296	187
Giant sea bass....	71	67	81	50	73	33	48	30	41	9	26	89	44	65	104	92	101	60	93	55	23
Salmon.....	3	13	3	3	31	1	3	1	3	10	--	--	--	1	1	--	--	10	3	7	138
White seabass....	4,795	4,431	30,597	22,916	11,451	5,544	2,996	880	2,244	521	3,878	3,812	1,577	1,457	1,658	573	931	851	971	120	720
Marlin.....	--	5	1	6	--	5	1	--	--	1	4	1	6	--	--	--	2	1	--	--	--
White croaker....	1,934	7,995	7,941	6,300	17,437	16,983	17,783	17,228	11,013	2,666	3,295	10,456	2,972	4,475	17,792	21,926	30,897	16,888	10,608	4,272	8,590
Haliboot.....	--	--	22	122	600	241	--	4,327	3,090	287	1	1,765	386	1,155	2,265	365	4,778	879	32,444	17,305	13,498
Sargo.....	--	--	--	--	--	--	--	82	1	--	--	2	8	7	1	106	769	769	1,178	30	2
Ocean whitefish..	1,965	1,813	2,974	2,823	2,839	3,751	2,884	4,333	4,505	2,899	960	1,541	1,759	3,142	2,873	2,242	2,455	2,831	6,722	5,632	7,198
Miscellaneous....	4,047	2,994	1,563	5,131	3,413	4,111	4,578	6,691	4,043	5,699	2,340	3,821	7,037	1,144	2,064	3,612	5,786	1,799	2,721	2,425	2,867
Total.....	429,329	335,909	429,998	356,161	369,271	429,358	480,799	734,686	687,720	606,677	686,106	650,972	843,737	804,055	647,098	736,493	960,887	735,124	790,537	848,322	541,018
Angler days.....	64,821	71,921	102,183	110,847	111,246	111,815	96,120	98,178	82,220	89,059	98,770	107,275	113,091	98,532	96,169	--	--	--	--	--	--
Anglers.....	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†

† Not available until 1960.

APPENDIX 28

Partyboat Catch and Effort for Newport Beach and Balboa, 1947-1967

Species	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Kelp, sand bass...	129,783	104,048	141,511	92,193	108,754	51,061	58,387	79,345	24,870	26,717	54,335	60,206	43,144	51,798	52,982	68,806	117,968	120,079	126,385	133,140	89,563
Calif. barracuda...	244,938	102,967	102,151	32,683	43,926	43,438	11,306	43,576	15,910	8,238	73,760	90,122	121,096	97,478	52,224	39,020	46,809	46,917	88,133	128,883	80,600
Pacific bonito...	13,871	2,278	1,023	224	1,329	19	186	2,454	817	2,758	29,554	58,268	117,230	177,616	122,239	116,764	92,283	218,468	110,793	81,678	48,137
Rockfishes...	11,745	5,573	8,756	3,733	2,295	3,934	9,083	81,997	37,417	31,142	19,113	7,467	11,456	31,876	21,625	11,853	23,270	22,367	29,409	58,769	55,898
Calif. halibut...	30,195	18,557	12,985	13,631	13,407	5,495	7,226	12,617	7,659	2,996	1,567	1,253	3,198	7,241	9,441	12,874	11,770	11,826	16,394	11,680	9,528
Calif. yellowtail...	244	639	716	102	68	6,640	2,522	288	12	21	12,870	7,024	48,848	35,726	5,027	709	1,431	1,024	168	1,027	113
Albacore...	5,122	8,273	15,066	51,266	34,530	76,853	6,385	7,428	18,780	15,262	9,925	99	--	4,907	23,699	25,923	17,797	6,876	4,317	3,948	3,396
Yellowfin tuna...	101	--	47	--	47	8	--	--	1	--	67	--	--	573	3	2	9	--	--	--	1
Skipjack tuna...	348	296	1	19	42	20	231	3	3	--	981	4	5	119	--	--	828	4	18	76	--
Bluefin tuna...	844	71	64	--	1,129	44	34	46	706	3,898	1,551	29	410	1	373	105	49	54	2	71	36
Pacific mackerel...	33,162	45,133	13,740	8,786	6,275	8,288	12,480	55,011	9,963	5,773	3,708	10,091	4,477	3,682	8,637	7,469	12,390	9,712	21,953	34,393	14,425
Jack mackerel...	641	195	35	8	54	2,041	76,861	3,674	188	188	235	521	47	81	13,555	47	1,242	1,474	823	444	96
Calif. sheepshead...	1,091	1,804	1,794	1,936	1,885	1,296	1,655	2,489	642	892	821	2,253	1,954	1,151	873	1,074	2,032	3,064	1,887	5,796	2,926
Sablefish...	--	2	--	--	--	--	112	14,320	1,230	57	--	--	--	--	2	3	46	76	--	1	2
Lingcod...	12	46	71	46	15	94	30	949	247	129	96	85	22	57	28	27	23	22	22	89	18
Misc. flatfish...	1,354	1,640	1,484	694	1,290	649	1,125	2,254	2,850	1,607	468	253	412	200	265	152	823	1,002	812	452	459
Sculpin...	1,648	4,933	4,452	6,282	8,244	3,787	4,652	4,466	2,378	3,782	1,000	865	935	1,751	2,707	3,130	5,895	11,145	12,962	15,088	11,101
Cabezon...	239	315	269	334	277	271	500	809	778	753	862	484	92	30	111	319	394	464	548	549	304
Giant sea bass...	17	254	18	15	14	4	30	11	34	4	23	41	19	25	55	40	76	29	52	38	21
Salmon...	--	1	2	--	--	2	2	9	42	36	4	1	--	--	5	3	--	11	6	9	33
White seabass...	6,235	6,128	18,431	8,625	11,427	6,629	4,667	9,226	5,400	3,425	1,919	5,995	829	1,718	1,137	609	979	1,227	1,147	454	109
Maui...	28	28	15	30	13	29	3	--	2	14	9	1	5	1	--	--	--	2	7	14	9
White croaker...	4,355	6,801	5,428	4,650	7,535	5,514	5,545	7,559	3,051	2,434	701	1,283	335	378	937	2,360	746	2,606	4,737	7,728	5,948
Hallmoon...	--	16	8	--	55	34	25	314	10	3	3	618	51	67	35	90	4,426	353	8,698	8,051	4,346
Sargo...	--	--	--	--	4	--	--	--	1	--	3	70	181	14	20	5	13	53	260	633	65
Ocean whitefish...	522	179	307	281	513	164	255	511	162	321	175	799	1,130	585	108	152	151	312	480	885	1,367
Miscellaneous...	3,769	3,039	1,737	1,102	1,648	2,770	2,196	2,095	971	655	936	805	862	1,744	1,743	2,329	803	2,814	5,917	5,099	2,039
Swordfish...	1	5	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total	490,765	313,224	330,051	226,640	244,776	219,090	205,478	337,856	137,610	111,016	214,687	248,637	356,738	418,824	317,847	293,865	342,233	459,779	435,900	498,795	330,480
Angler days...	88,684	90,321	93,484	102,726	98,380	98,308	71,602	65,563	42,626	42,705	43,674	40,681	45,463	48,758	45,561	44,964	49,728	67,092	71,288	80,256	63,880
Anglers...	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†

† Not available until 1960.

APPENDIX 29

Partyboat Catch and Effort for San Clemente and Capistrano Beach, 1947-1967

Species	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Kelp, sand bass---	42,387	84,600	75,963	62,982	53,567	43,227	63,576	35,602	23,007	20,868	42,386	45,684	31,317	22,781	46,597	86,274	124,126	121,104	104,755	86,539	65,989
Calif. barracuda---	46,266	73,252	58,976	42,950	31,999	47,414	19,972	31,487	27,619	10,688	58,177	55,099	67,774	56,143	45,257	42,693	55,881	31,350	56,890	73,914	56,779
Pacific bonito-----	3,111	1,243	673	11	803	15	227	4,452	777	4,515	16,970	38,597	57,812	81,806	81,740	7,021	48,949	108,228	64,389	33,987	24,705
Rockfishes-----	716	358	344	301	3,381	3,381	2,586	7,654	22,952	23,317	2,626	5,650	1,464	998	505	3,033	760	1,565	1,413	1,762	805
Calif. halibut-----	2,222	8,669	5,427	6,713	5,670	3,612	3,542	4,588	3,832	5,936	1,476	1,071	2,470	2,994	6,421	11,477	15,477	12,805	12,375	8,419	7,866
Calif. yellowtail---	242	1,100	1,286	2	25	5,388	3,255	321	11	13	8,350	3,508	24,791	19,736	3,124	343	349	374	114	147	8
Albacore-----	251	261	1,553	6,762	4,829	13,129	940	766	6,227	1,028	66	--	--	--	4,415	1,558	855	12	172	--	--
Yellowfin tuna-----	--	--	--	--	--	--	--	--	--	--	--	--	--	115	--	--	--	--	--	--	--
Skipjack tuna-----	68	82	7	1	12	13	--	--	--	5	4	2	--	4	--	--	--	--	--	1	--
Bluefin tuna-----	126	--	9	--	25	19	13	31	37	499	47	33	166	--	308	5	6	--	--	2	12
Pacific mackerel---	12,336	20,266	8,660	2,922	2,425	2,939	4,255	19,570	3,674	4,295	5,352	11,528	6,338	1,952	6,128	4,230	1,261	905	3,203	4,983	2,204
Jack mackerel-----	1,171	15	21	46	24	155	26,772	99	6,535	4	--	1,983	328	54	4,834	8	2	36	--	--	1
Calif. sheepshead---	318	1,316	456	333	256	564	702	1,144	429	497	542	649	519	364	503	556	420	305	352	850	209
Sablefish-----	--	--	--	--	--	--	--	1	16	--	--	--	--	--	--	2	3	--	--	--	--
Lingcod-----	1	4	--	38	--	1	1	--	13	55	--	4	--	1	--	--	--	--	2	1	1
Misc. flatfish-----	8	96	199	130	219	64	99	165	128	82	24	18	17	8	55	41	24	16	143	17	6
Sculpin-----	312	1,606	860	587	617	1,355	1,424	887	711	795	584	368	198	459	900	1,324	643	1,252	1,291	2,429	874
Cabezon-----	13	218	201	120	62	121	268	334	631	1,035	728	276	37	21	26	160	102	183	257	148	33
Giant sea bass-----	5	35	43	24	12	10	15	16	22	24	62	27	41	26	29	32	92	34	11	9	12
Salmon-----	--	--	--	1	5	--	2	--	7	--	1	1	--	--	--	--	--	5	3	4	16
White seabass-----	2,241	6,085	7,329	4,841	3,670	7,409	4,869	12,008	4,723	2,904	3,496	3,805	907	1,901	2,474	1,918	3,938	2,225	875	350	217
Marlin-----	--	--	--	--	--	1	--	--	--	--	--	--	1	1	--	--	--	--	--	--	--
White croaker-----	2,674	2,078	2,764	1,859	2,499	8,140	3,371	4,846	2,741	3,925	819	1,956	247	314	846	418	580	288	696	100	189
Haliboot-----	--	--	--	--	77	153	1	12	2	--	--	102	69	--	63	--	147	1	--	76	100
Sargo-----	--	--	--	--	1	--	--	36	6	8	64	22	38	1	11	1	--	--	1	26	91
Ocean whitefish-----	--	110	22	68	23	14	121	344	108	109	5	145	30	9	9	31	20	4	20	3	1
Miscellaneous-----	1,268	1,292	2,139	307	549	4,000	3,527	3,918	1,470	1,264	585	415	355	137	197	85	102	630	193	131	5
Swordfish-----	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total-----	115,020	203,044	166,947	131,061	107,670	141,125	139,558	128,280	105,698	81,861	142,360	170,002	194,924	189,824	204,444	228,210	253,738	281,288	247,161	218,888	160,123
Angler days-----	16,088	23,640	26,261	25,529	21,287	31,115	27,255	22,125	19,560	17,168	24,928	22,280	24,664	22,548	23,862	--	--	--	--	--	--
Anglers-----	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
																					29,355

† Not available until 1960.

Partyboat Catch and Effort for Oceanside, 1947-1967

Species	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Kelp, sand bass...	14,550	24,493	19,437	39,418	64,756	66,594	96,359	88,892	69,971	69,096	56,359	61,131	45,481	54,100	71,181	75,043	107,378	127,619	79,220	85,000	93,360
Calif. barracuda...	6,553	15,764	6,530	11,070	22,515	51,364	63,755	78,216	57,282	33,952	83,701	59,237	80,885	63,171	70,696	64,010	66,231	74,445	81,122	101,446	85,741
Pacific bonito...	276	902	447	13	1,470	77	3,839	6,817	7,283	17,830	28,433	47,238	87,120	80,596	73,944	64,438	53,786	100,899	59,437	40,870	36,107
Rockfishes...	24	35	10	25	151	293	1,949	3,914	3,993	9,811	3,941	3,673	1,072	251	401	3,049	3,918	14,276	8,442	7,566	
Calif. halibut...	482	385	373	1,480	1,004	1,486	2,239	2,911	2,639	3,956	997	3,071	2,466	3,349	9,161	10,378	13,230	11,495	12,889	11,100	6,903
Calif. yellowtail...	48	833	155	15	705	7,572	2,868	363	212	1,208	8,289	2,357	36,430	19,043	2,625	1,128	1,549	870	442	2,776	156
Albacore...	--	70	13	957	1,217	7,153	308	812	4,209	581	22	--	--	235	3,776	6,033	2,541	3,225	2,032	1,508	2,118
Yellowfin tuna...	--	--	--	--	1	--	--	--	--	52	1	--	--	176	--	--	--	--	--	--	17
Skipjack tuna...	50	--	--	2	3	3	4	--	--	1	29	1	148	34	1	1	5	120	7	--	2
Bluefin tuna...	--	--	--	--	4	3	--	9	--	186	23	2	28	--	108	36	5	28	3	18	22
Pacific mackerel...	591	368	554	2,688	199	3,955	4,045	10,185	8,008	2,010	6,021	25,012	3,755	1,056	5,545	5,180	6,910	8,821	3,905	11,784	13,398
Jack mackerel...	13	--	--	--	--	--	7,688	13	8,551	21	165	928	361	22	59	14	--	250	1	72	5,613
Calif. sheephead...	8	53	153	189	736	423	688	488	459	460	422	1,064	772	496	495	509	961	1,174	645	1,919	1,497
Sablefish...	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	1	4	--	--	--
Lingcod...	7	--	--	1	4	5	8	89	137	224	94	81	36	15	8	16	51	17	78	57	16
Misc. flatfish...	3	7	15	8	8	43	144	142	78	45	26	58	42	6	27	19	99	142	524	384	659
Sculpin...	35	43	199	184	305	1,378	1,659	689	664	1,147	342	706	272	602	1,363	2,497	3,548	12,480	4,173	8,082	7,329
Cabezon...	3	--	107	189	138	377	450	555	1,245	921	316	516	164	37	55	253	212	497	156	431	156
Giant sea bass...	--	1	1	6	4	2	6	8	16	11	9	23	15	11	16	40	51	42	27	41	27
Salmon...	--	--	--	--	1	--	--	--	1	3	1	--	--	--	--	--	--	7	8	4	18
White seabass...	1,535	1,736	692	5,905	7,252	7,852	12,067	16,656	9,895	9,794	4,742	6,849	2,672	3,624	6,353	7,514	10,680	7,342	4,666	629	641
Marlin...	--	--	--	--	--	--	--	--	--	--	--	1	1	--	1	--	1	1	--	--	--
White croaker...	95	170	41	167	60	120	245	476	263	529	521	904	15	838	234	273	561	781	964	772	1,196
Halibut...	--	--	--	--	--	5	--	--	--	--	--	--	--	--	--	--	249	85	84	259	619
Sargo...	--	--	--	--	--	--	--	--	--	1	23	9	14	50	--	--	65	301	73	513	19
Ocean whitefish...	17	--	19	23	153	127	38	63	111	105	19	203	403	146	90	58	54	109	185	88	205
Miscellaneous...	18	96	37	115	200	1,551	1,132	488	287	1,004	373	183	143	284	248	1,465	872	5,001	1,017	2,237	3,891
Swordfish...	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1
Total...	24,308	44,956	29,083	62,455	100,885	150,315	199,461	212,776	174,423	152,948	194,869	213,247	262,295	228,142	246,387	241,954	272,956	359,184	265,934	278,432	267,277
Angler days...	3,088	5,840	4,034	9,991	12,163	18,246	22,946	23,035	19,446	21,629	22,913	22,955	20,619	20,752	21,688	26,729	29,344	40,489	38,242	42,602	41,783
Anglers...	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†

† Not available until 1960.

Partyboat Catch and Effort for San Diego, Mission Beach and Coronado, 1947-1967

CALIFORNIA PARTYBOAT FISHERY

Species	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Kelp, sand bass...	51,496	68,562	78,525	61,360	95,519	51,493	98,707	112,013	42,162	61,833	55,466	70,952	45,942	42,206	43,024	52,217	74,577	68,811	98,146	89,353	96,370
Calif. barracuda...	11,799	25,359	25,463	35,942	41,583	44,739	40,295	32,266	31,997	27,825	96,556	131,876	171,932	64,154	60,315	55,276	66,640	60,564	71,965	130,267	109,351
Pacific bonito...	383	3,441	2,972	1,357	2,796	1,786	487	49,067	13,012	31,693	57,805	46,912	105,892	208,412	139,842	168,879	124,553	244,761	164,526	150,767	98,467
Rockfishes...	1,809	14,907	37,589	38,259	30,789	34,897	45,689	56,410	86,135	134,256	67,700	71,168	55,964	74,260	60,644	60,644	53,063	51,714	71,292	69,494	67,470
Calif. halibut...	273	1,502	336	730	983	685	1,694	1,033	736	2,061	1,361	2,680	581	971	4,762	3,993	2,244	3,200	1,893	1,244	2,959
Calif. yellowtail...	5,966	9,348	12,885	6,434	21,234	29,831	16,074	35,720	34,148	27,226	172,391	85,212	199,821	77,928	16,510	14,565	30,192	27,240	14,551	63,307	30,061
Albacore...	70	522	1,576	1,523	1,098	3,167	1,388	1,482	16,743	14,559	14,728	6,165	--	45,397	69,239	89,699	82,637	76,450	65,680	54,409	70,702
Yellowfin tuna...	10	14	--	--	--	3	--	47	--	9	4,537	232	2	431	10	--	61	103	100	240	10,361
Skipjack tuna...	9	55	--	--	5	--	2	--	--	--	4,537	232	7	61	2	4	1,663	2,880	2,096	453	1,691
Bluefin tuna...	50	--	1	1	37	26	1,933	107	940	2,945	1,604	166	54	43	637	765	116	508	67	1,520	2,373
Pacific mackerel...	972	9,543	2,896	3,200	2,114	2,104	1,576	39,131	23,379	31,885	6,037	2,399	3,072	11,317	11,517	30,794	26,030	28,497	23,299	44,122	49,407
Jack mackerel...	96	36	15	15	--	--	39	1,011	1,09	639	634	104	854	192	235	769	169	585	443	2,938	2,228
Calif. sheephead...	455	1,316	1,051	859	788	391	235	1,444	996	913	1,208	1,240	966	1,143	1,727	1,472	2,626	1,954	5,284	7,048	4,663
Sablefish...	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lingcod...	651	545	492	309	464	447	391	1,491	4,314	8,718	3,539	1,781	1,757	1,195	734	677	464	420	319	424	279
Misc. flatfish...	7	111	626	209	798	3,140	1,700	3,147	1,659	3,173	1,154	821	825	454	436	371	440	643	533	289	388
Sculpin...	6,216	9,908	4,866	2,990	2,107	2,230	1,947	2,656	2,276	3,133	1,271	1,002	596	1,542	3,119	4,184	7,725	6,306	7,951	10,787	11,402
Cabezon...	74	102	171	206	262	405	132	333	373	574	285	309	88	42	128	254	330	449	355	420	363
Giant sea bass...	31	35	31	39	120	26	13	19	28	12	13	26	36	47	35	51	113	55	286	315	452
Salmon...	--	--	--	--	--	--	--	1	1	3	--	1	--	--	--	1	1	10	2	7	41
White seabass...	1,594	2,924	1,831	4,521	2,846	6,788	2,102	2,370	7,528	2,994	1,666	8,860	1,863	3,878	1,252	2,586	1,132	1,000	836	875	1,140
Marlin...	3	24	12	78	45	13	--	9	4	16	7	80	333	8	6	2	32	42	38	24	72
White croaker...	221	331	93	54	765	757	204	459	298	489	601	220	26	10	54	381	61	365	778	490	378
Halibut...	--	--	63	--	--	--	--	445	41	4	90	147	18	411	45	--	115	66	138	218	85
Sargo...	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5
Ocean whitefish...	781	6,845	7,956	8,108	2,386	2,429	284	1,844	2,060	1,071	574	793	429	727	1,283	827	1,691	1,191	1,773	2,398	2,121
Miscellaneous...	740	1,768	234	106	481	281	213	1,034	562	732	3,734	1,440	927	990	1,228	1,778	2,765	2,790	6,405	4,618	3,150
Swordfish...	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	27
Total...	83,707	157,198	179,684	166,300	207,170	185,638	184,996	343,569	269,501	356,764	483,210	443,488	591,983	535,821	437,967	490,129	480,030	578,604	536,745	636,117	566,106
Angler days...	32,899	41,997	48,840	45,647	60,018	57,005	62,567	71,909	72,520	78,865	116,815	88,638	99,890	83,923	68,272	--	--	--	--	--	--
Anglers...	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	90,819	94,001	101,597	94,563	142,275	140,691

